



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO039295

Supplier: MOA001-VU
Monroe Aerospace
399 East Drive
Melbourne, FL 32904 USA
Phone: 1-321-727-0047
Fax: 1-321-727-7331

PO No: PO039295
PO Date: 3/13/18
Due Date: 3/16/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Phone:

E-MAILED
MAR 12 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: Net 30
Freight Terms:
Special Comments:

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	AN4-51A		Bolt	Firmed	3/16/18	200 Ea	0 Ea	200 Ea	\$3.10/Ea	\$620.00
2	AN4-6A		Bolt	Firmed	3/16/18	500 Ea	0 Ea	500 Ea	\$0.1397/Ea	\$69.85
3	AN4C15		Bolt	Firmed	3/16/18	50 Ea	0 Ea	50 Ea	\$0.78/Ea	\$39.00
4	AN5-15A		Bolt	Firmed	3/16/18	100 Ea	0 Ea	100 Ea	\$0.44/Ea	\$44.00
5	AN6-13A		Bolt	Firmed	3/16/18	20 Ea	0 Ea	20 Ea	\$0.50/Ea	\$10.00
6	CR3212-4-3		Cherry Rivet	Firmed	3/16/18	200 Ea	0 Ea	200 Ea	\$0.34/Ea	\$68.00
7	MS21209F5-15		Heli Coil	Firmed	3/16/18	200 Ea	0 Ea	200 Ea	\$0.26/Ea	\$52.00
8	MS24665-151		Cotter Pin	Firmed	3/16/18	400 Ea	0 Ea	400 Ea	\$0.03/Ea	\$12.00
9	MS27039-08-08		Screw	Firmed	3/16/18	100 Ea	0 Ea	100 Ea	\$0.07/Ea	\$7.00
10	NAS1149C0463R		Washer	Firmed	3/16/18	200 Ea	0 Ea	200 Ea	\$0.05/Ea	\$10.00
11	NAS1149FN632P		Washer	Firmed	3/16/18	200 Ea	0 Ea	200 Ea	\$0.0251/Ea	\$5.02
12	NAS1756-12		Remove Before Flight	Firmed	3/16/18	100 Ea	0 Ea	100 Ea	\$2.73/Ea	\$273.00
Grand Total:									\$1,209.87	

Order Notes

Procurement Quality Clauses
A005 RIGHT OF ENTRY
A016 PERSONNEL QUALIFICATION
A026 CERTIFICATION OF MATERIAL CONFORMANCE
A032 PUBLIC LAW 101-592 FASTENER QUALITY ACT
A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS
A040 NOTIFICATION OF QUALITY-ESCAPE
A041 QUALITY MANAGEMENT SYSTEM
A042 DART NOTIFICATION BY SUPPLIER
A043 RETENTION OF QUALITY DOCUMENTS



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO039295

Order Notes

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 3/13/18 12:57 PM dart.baker.diane

**2655 Harrison Ave. SW
Canton, Ohio 44706-3047
Phone: 330-430-6190
Fax: 330-430-6199**

CERTIFICATE OF CONFORMANCE

ECAS

I Herby Certify that on **04/25/17** Airfasco Industries provided the supplies called for by Contract/ PO Number **FL79288** in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

Quality Assurance Representative


WM. DENT

[illegible]



AIRFASCO

INDUSTRIES

MANUFACTURER OF AEROSPACE PRODUCTS

2655 HARRISON AVE. SW
CANTON, OH 44706
PHONE: (330)430-6190
FAX: (330)430-6199

PHYSICAL AND CHEMICAL CERTIFICATION

DATE MFG.: 08/03/14

PART NO.: AN4-51A per NASM4-51A rev. 3

AFC LOT NO.: 14474

QTY MFG.: 19,973

PROCUREMENT SPECIFICATION: Produced per NASM 6812

HEAT TREAT

VENDOR: Brite Metal

CERTIFICATION NO.: B-135362

PROCUREMENT SPECIFICATION: Heat Treat per MIL-H-6875 H

PLATING

VENDOR: Beringer Plating

CERTIFICATION NO.: 45271

PROCUREMENT SPECIFICATION: Cadmium Plate per QQ-P-416, Type II, Class 2.F

MATERIAL

MILL: Ivaco

COUNTRY OF MELT: Canada

HEAT: A85463

GRADE SPECIFICATION: Alloy Steel per AMS 6300 E, Type 4037, .275"

4037 MATERIAL CHEMISTRY

ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.370	.790	.010	.008	.210	.030	.090	.219	.090	.005	


PHYSICAL PROPERTIES

PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	4,080 lbs.	3,130 lbs.	3,680 lbs.	HRC 26-32
ACTUAL	5,316 lbs.	4,777 lbs.	4,240 lbs.	HRC 29-31

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

Airfasco Industries

Quality Assurance Representative:


T. West



MILL TEST CERTIFICATE

INACO ROLLING MILLS LP

P.O. BOX 322, L'ORIGNAL, ONTARIO, CANADA M0B 1H0
TEL: (513) 675-4571 FAX: (513) 675-6968

10700 0001 **AIRFASCO C/O BCS MAPLE HEIGHTS**
5800 STERLING AVENUE

MAPLE HEIGHTS (OH) 44137

ATTENTION: Dennis Dent

FAX: (330) 430-6199



NVLAP
Lab Code 200143-0

Date Rolled 04-Feb-2007

Date Chemical Analysis Performed

20-Jan-2007

P.O. Number	Order Number	Heat Number	Customer Spec.	Spec Rev. No.	Customer Part No.	Billet Order	Grade	Diameter										
40351	10108449	A85483	4037SKFG			237769	4037V	7.00 mm										
Heat Analysis																		
	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	N	B	V				
Spec. Min *	.35	.70			.15				.200					.020				
Actual	.37	.79	.010	.008	.21	.09	.03	.090	.219	.007	.005	.0076	.0000	.028				
Spec. Max *	.40	.90	.020	.020	.30	.20	.10	.100	.300	.020				.050				

This is to certify that heat number A85483 is in conformance with the required specifications.

Heat analysis obtained by test methods ASTM E415 and ASTM E1019.

*Minimum and maximum refer to the required customer specification.

This is to certify that the material is in conformance with the required specifications.
Radioactive emissions are at background levels.

43.720 lb
ACTUAL
REBAR

.275"

RECEIVED

FEB 06 2007

Goodman

APPROVED BY:

W. B. [Signature]
Supervisor, Chemistry Laboratory and Billet Inspection

ISSUED BY QUALITY ASSURANCE:

Date: 5 Feb 2007

Elaine O. [Signature]
Specification Clerk

This certificate shall not be reproduced except in full, without the written approval of Inaco Rolling Mills Inc. This certificate is not to be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.
NVLAP only covers the chemistry presented within this certificate. All other data is not covered by the NVLAP accreditation.

Page 1 of 1

13 6/5 0256

O A ROD MILL

11-43-54

02-08-2007

1/1

CERTIFICATION OF PROCESS

BRITE METAL, INC.
8640 BESSEMER AVENUE
CLEVELAND, OHIO 44127

CUSTOMER: AIRFASCO INDUSTRIES, INC.

2655 Harrison Ave. SW

Canton, OH 44706

THIS IS TO CERTIFY THAT BRITE METAL, INC. HAS PROCESSED THE
FOLLOWING MATERIAL TO MIL-H-6875, H IN ACCORDANCE WITH THE MOST
WIDELY ACCEPTED METALLURGICAL PROCEDURE.

AFC P.O. NO. - 17359 WEIGHT 2,289 lbs. NO. PCS - 30,170
DESCRIPTION - AN4-51A LOT NO. - 14474 HEAT NO. - A85463
BM ORDER NO: B - 135362 Core Hardness Specifications: 28-31 Rc
DATE RECEIVED - 5/14/07 DATE SHIPPED 7/24/07

HEAT TREATING TEST RESULTS

NUMBER OF SAMPLES - 6 prs
CORE HARDNESS - 29-31 Rc

RECEIVED
JUL 25 2007

INSPECTOR Univert Water

DATE - 7/24/07

CERTIFICATE OF COMPLIANCE

Approved by Bruce Hogle
Revision Date: 3-9-04

SUPPLIER: **BERINGER PLATING, INC.**
1211 DeValera Ave.
Akron, OH 44310

CUSTOMER: Airfasco Industries, Inc.

Purchase Order Number 17808

Part Number AN4-51A Rev.

Lot Quantity 1,509 lbs

Specification Cadmium plate per QQ-P-416F w/amendment 3Ty II Cl 2

Coating thickness .0003"

Baking (if required) NA Hours at F

Inspection Level to applicable standard: ACC. X

S-3 of MIL.-STD.-105D: 4%

ASTM B602 Table II: 1.5%

Aircraft Braking System: 1%

Certified By: James Beringer Jr. Date: 8-2-07
James Beringer Jr.
President

RECEIVED
AUG 01 2007

45271

AIRFASCO Industries

2655 Harrison Avenue SW Canton, OH 44706

Nondestructive Testing Certification Wet Fluorescent Magnetic Particle Inspection Technique

Part Data

Part Number	Lot Number	Dimensions	Part Description
AN4-51A	14474	1/4-28 x 5 5/32	BOLT-MACHINE, AIRCRAFT

Reference Data

Specification	Procedure Number	Acceptance Criteria
ASTM E1444	MT-1	No Cracks, NASM 6812

Inspection Equipment Data

Model Number	Manufacturer	Serial Number
H-800 Retro	Magnaflux Corporation	91R00150

Inspection Material Data

Particles	Mfr	Batch No.	Carrier	Mfr	Batch No.
14A	Magnaflux	10G078	MG II	Magnaflux	14B056

Technique Data

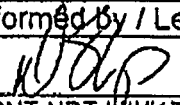
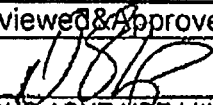
Type Current	Circular Field		Longitudinal Field	
	Headshot Amps	Central Conductor Amps	Coil shot Amps	Coil Turns
FWDC	170	N/A	420	5

Particle application by the flow method, continuous technique
Demagnetization performed by the AC Coil method, Residual field +/- 2

Inspection Results

Lot Size	Inspection Sample Size	Quantity accepted	Quantity rejected
19800	50	50	0

Notes:

Performed by / Level	Reviewed & Approved by:	Date
 D. SHOUP ASNT NDT LIII#176608	 D. SHOUP ASNT NDT LIII#176608	8/5/14



**2655 HARRISON AVE. SW
CANTON, OH 44706
PHONE: (330)430-6190
FAX: (330)430-6199**

CERTIFICATE OF CONFORMANCE

EAST COAST AVIATION

I Hereby Certify that on 2/26/13 Airfasco Industries provided the supplies called for by Contract/ PO Number 65702 in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7014 ALT 1 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.


WM. DENT

Quality Assurance Representative

[illegible]

MAC FASTENERS, INC.
1110 ENTERPRISE
OTTAWA, KANSAS 66067

**CERTIFICATE OF CONFORMANCE
AND
MANUFACTURER'S AFFIDAVIT**

CUSTOMER: BILD INDUSTRIES

PO: 84663

PART NUMBER: AN4C15

REV: 3

LOT NUMBER: 76472

MANUFACTURED QUANTITY: 1,500

MILL HEAT NUMBER: 574694

COUNTRY OF ORIGIN: UNITED STATES OF AMERICA

DFARS 252.225.7009 Compliant

MERCURY FREE CERTIFICATION

MacFasteners certifies that the parts referenced in the above lot number
do not contain Mercury or Mercury compounds, and were
manufactured in a Mercury free environment.

We certify that the parts furnished against the above referenced purchase order were manufactured by MAC
FASTENERS within the United States, and were processed in accordance with all applicable drawings and
specifications. Objective evidence of compliance is on file, subject to examination upon request.

Mac Fasteners is a DISC QSLM approved Manufacturer - CAGE Code 0RFT4
Mac Fasteners is an Airbus approved Supplier - 203399

DATE: 08/05/15


QUALITY ASSURANCE REPRESENTATIVE

MAC FASTENERS, INC.
1110 EAST ENTERPRISE
OTTAWA, KS 66067

CHEMICAL & PHYSICAL TEST REPORT

CUSTOMER BILD INDUSTRIES	PO NUMBER 84663	MFG QUANTITY 1,500	DATE 08/05/15
PART NUMBER AN4C15	REV 3	LOT NO 76472	PROCUREMENT SPEC NASM6812

MATERIAL TYPE 431				MATERIAL SPECIFICATION ASTM A493				MILL HEAT NUMBER 574694			SUPPLIER CARPENTER		
C .17	Si .54	Mn .63	P .015	S .001	Cu	Ni 1.56	Cr 15.8	Mo	V	B	Fe	Al	Ti
	Co	N	Bi	Pb	Mg	Zn		Nb	Sn		Other		

MECHANICAL TEST RESULTS - TESTING PER NASM1312

ULTIMATE TENSILE STRENGTH POUNDS	
6,060	
6,100	
6,130	
6,080	
6,060	
MIN. REQ.	4,080

DOUBLE SHEAR STRENGTH POUNDS / PSI	
8,150	
8,140	
8,110	
8,140	
8,140	
MIN. REQ.	7,360

HARDNESS	
ROCKWELL "C" SCALE	
REQ.	26 - 32 HRC
SAMPLE SIZE	5
ACTUAL RESULTS	
27 - 30 HRC	

METALLURGICAL EXAMINATION			
Discontinuities	<input checked="" type="checkbox"/>	Carb/Decarb	<input checked="" type="checkbox"/>
Grain Flow	<input checked="" type="checkbox"/>	Microstructure	<input checked="" type="checkbox"/>
Grain Size	<input checked="" type="checkbox"/>	Appearance	<input checked="" type="checkbox"/>
Thread Inspection FED-STD-H28/20 - ASME B1.3	System 21 <input type="checkbox"/>	System 22 <input checked="" type="checkbox"/>	System 23 <input type="checkbox"/>

NDT/ ADDITIONAL TESTS	
Magnetic Particle Inspection per ASTM E1444	<input checked="" type="checkbox"/>
Liquid Penetrant Inspection per ASTM E1417	<input type="checkbox"/>
Head Marking	<input checked="" type="checkbox"/>
Fatigue Strength	<input type="checkbox"/>
Stress Durability Test NASM1312/5	<input type="checkbox"/>
	<input type="checkbox"/>
Magnetic Permeability ASTM A342 Less than 2.0	<input type="checkbox"/>

TEST CERTIFICATION

WE CERTIFY THAT THE PART NUMBER, LOT NUMBER, AND SAMPLES REFERENCED ABOVE HAVE BEEN TESTED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATION FOR THE TESTS REPORTED HEREIN. THIS CERTIFICATION SHALL NOT BE RE-PRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF MAC FASTENERS, INC.


Quality Assurance Representative

MAC FASTENERS, INC.
1110 ENTERPRISE
OTTAWA, KANSAS 66067

HEAT TREAT CERTIFICATION

CUSTOMER: BILD INDUSTRIES

DATE: 08/05/15

PO NUMBER: 84663

MANUFACTURED QUANTITY: 1,500

PROCESSOR:

PAULO PRODUCTS KCMO - NADCAP ID 4679

LOT NUMBER: 76472

MATERIAL: TYPE 431

PART NUMBER: AN4C15

REVISION: 3

REQUIRED HARDNESS: 26 - 32 HRC

SAMPLE SIZE: 5

HARDNESS: 27 - 30 HRC

HEAT TREAT SPECIFICATION AS APPLICABLE: MIL-H-6875/AMS-H-6875/AMS2759/AMS5853/PS-1001

Notes:

The fasteners referenced in this report have been processed, inspected and certified by the Heat Treat Contractor in accordance with all applicable drawings and specifications. Heat Treatment has been verified in accordance with procurement specification and part drawing, by metallurgical and mechanical testing as applicable. Evidence of compliance as well as certification from the Heat Treat Contractor is on file and subject to examination upon request.



QUALITY ASSURANCE REPRESENTATIVE

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000976815



CARPENTER

Carpenter Technology Corporation
101 West Bern Street, Reading, Pa. 19601
Tel: (610) 208-2000 (800) 338-4592

- THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FEDERAL STATUTES INCLUDING FEDERAL LAW, TITLE 18, CHAPTER 47.
- THE VALUES AND OTHER TECHNICAL DATA REPRESENT THE RESULTS OF ANALYSES AND TESTS MADE ON SAMPLES COLLECTED FROM THE TOTAL LOT. ORIGINAL DATA RECORDS CAN BE TRACED BY REFERENCE TO THE CARPENTER ORDER NUMBER.
- MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM, ALPHA AND GAMMA SOURCE CONTAMINATION.
- THIS DOCUMENT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN CONSENT OF CARPENTER TECHNOLOGY CORPORATION.

04/22/15

CUSTOMER/BESTELLER/CLIENT

MAC FASTENERS INC

1110 E. ENTERPRISE
OTTAWA KS 66067

SELLER/VERKÄUFER/VENDEURPAGE 1 OF 1

BOL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
106744	W60708	04/22/15	4771.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 574694

PRODUCT DESCRIPTION: TYPE 431 ANNEALED COLD FINISH SEAM FREE C HDG SC2 STRAND

CU/SOAP TENSILE MAX 115.0 KSI AIM: MIN 100.0 MAX 110.0
PART NUMBER: 431-.247

SPECIFICATION: ASTM-A493-09 (REAPPROVED 2013)

SIZE 0.247000 IN. (6.27 MM) RD WIRE

HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN (XRF)	SI (XRF)	P (XRF)	LT	S (COM)	CR (XRF)
0.17	0.63	0.54	0.015		.001	15.8
NI (XRF)						
1.56						

THIS HEAT MELTED BY THE ELECTRIC ARC/AOD PROCESSES

TENSILE AS SHIPPED, KSI(MPA) 98.5(679)

MATERIAL HAS BEEN MELTED AND MANUFACTURED IN THE USA WHICH IS A QUALIFYING COUNTRY TO DFARS REQUIREMENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1, SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009.

THIS ORDER WAS MANUFACTURED IN ACCORDANCE WITH CARPENTER SPECIALTY ALLOYS OPERATIONS QUALITY PROGRAM MANUAL, REVISION 31 DATED 09/03/13.

CARPENTER'S QUALITY MANAGEMENT SYSTEM WAS REGISTERED AS OF NOVEMBER 24, 2013 TO THE REQUIREMENTS OF ISO 9001:2008 APPROVAL CERTIFICATE 13-1996R BY PERFORMANCE REVIEW INSTITUTE. THIS CERTIFICATE OF TEST IS TYPE 3.1 PREPARED IN ACCORDANCE WITH EN 10204 (DIN 50049). WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS, AS DOCUMENTED IN THIS CERTIFICATE OF TESTS.

TEST METHODS ARE PER THE ASTM STANDARDS ON FILE AND IN EFFECT AT TIME OF ORDER ACCEPTANCE, STANDARD PRACTICES, OR AS AGREED UPON BETWEEN CARPENTER & CUSTOMER.

GARY BROWN
MANAGER - SPECIFICATIONS/CERTIFICATIONS
CARPENTER TECHNOLOGY CORPORATION

Gary Brown

FORM FZ-365

This certificate is made to the customer printed on this form. Carpenter neither makes, nor assumes responsibility for, any representation or certification to other parties.
Die vorliegende Zertifizierung ist nur für den in diesem Formular genannten Kunden gültig. Carpenter übernimmt gegenüber Dritten keine Haftung für die angegebenen Daten oder Zertifizierungen.
Ce certificat est uniquement valable pour le client dont le nom est imprimé sur ce formulaire. Carpenter n'assume pas de responsabilité pour une certification vis-à-vis d'une tierce personne.

DE TRAY Plating Works

Specialized Electro-Plating and Polishing
Nickel
Copper
Decorative Chrome
Satin Chrome
Zinc
Cadmium
Passivate
Bright Dip
Strip Copper
Descale

10405 EAST ELEVENTH STREET • INDEPENDENCE, MISSOURI 64052
Phone (816) 252-8411 Fax (816) 252-8527 • E-mail: DeTrayPlating@aol.com

CUSTOMER: Mac Fasteners Lot#: 76472
PART NUMBER: AN4C15
PROCUREMENT SPECIFICATION: n/a
OTHER CONTRACTURAL REQUIREMENTS:
MATERIAL: 431
QUANTITY: 41 lbs
INVOICE NUMBER: 192734

Certification Statement:

We certify that the above referenced lot was processed, tested, and inspected in accordance with passivate treatment per AMS2700 Method 1, Class 4 and part standard.

DE TRAY PLATING WORKS

NAME: James V. Lison

JOB TITLE: VICE-PRESIDENT

DATE: 8/03/15

**2655 Harrison Ave. SW
Canton, Ohio 44706-3047
Phone: 330-430-6190
Fax: 330-430-6199**

CERTIFICATE OF CONFORMANCE

ECAS LLC

I Hereby Certify that on **09/29/17** Airfasco Industries provided the supplies called for by Contract/ PO Number **FL80657** in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

Quality Assurance Representative


WM. DENT

[illegible]



AIRFASCO

INDUSTRIES

MANUFACTURER OF AEROSPACE PRODUCTS

2655 HARRISON AVE. SW
CANTON, OH 44706
PHONE: (330)430-6190
FAX: (330)430-6199

PHYSICAL AND CHEMICAL CERTIFICATION

DATE MFG.: 10/03/14

PART NO.: AN5-15A per NASM5-15A rev. 3

AFC LOT NO.: 23860

QTY MFG.: 27,700

PROCUREMENT SPECIFICATION: Produced per NASM 6812

HEAT TREAT

VENDOR: Brite Metal

CERTIFICATION NO.: 165109

PROCUREMENT SPECIFICATION: Heat Treat per AMS 2759

PLATING

VENDOR: Beringer Plating

CERTIFICATION NO.: 77940

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS QQ-P-416. Type II, Class 2

MATERIAL

MILL: Republic/Cuyahoga COUNTRY OF MELT: USA HEAT: 8962033

GRADE SPECIFICATION: Alloy Steel per AMS 6322 N. Type 8740. .375"


8740 MATERIAL CHEMISTRY											
ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.410	.890	.015	.014	.250	.490	.460	.210	.100	.027	

PHYSICAL PROPERTIES				
PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	6,500 lbs.	4,980 lbs.	5,750 lbs.	HRC 26-32
ACTUAL	8,330 lbs.	7,929 lbs.	6,862 lbs.	HRC 30-31

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

QS-082
Rev 0
2/15

Airfasco Industries
Quality Assurance Representative:


T. West

CUYAHOGA STEEL & WIRE
81000 SOLOH RD, SOLOH, OH 44189

MATERIAL CERTIFICATION

DATE: 6/04/2002

SHIP NO: 67138

Sold to:

AIRFASCO INDUSTRIES
107 SCHNEIDER ROAD
NORTH CANTON

Ship to:

AIRFASCO INDUSTRIES
1210 E 56TH
CLEVELAND

OH 44720-3649

OH 44103

ALL CHEMISTRY DATA IS CERTIFIED BY THE HOT ROLL SUPPLIER.
WHEN ELEMENT CONTENTS ARE REPORTED AS ZERO, ACTUAL CONTENTS MAY EQUAL ZERO OR
WERE NOT REPORTED BY THE HOT ROLL MILL.

Cust No.	PO#	Ship Date	Ship VIA	P.O.B
1080 21645		6/02/02	CUST TRUCK COL	SOLOH
Our Order#	Date	Sales Rep		
18157/	12/21/01	99		
Item Description:	Qty Shipped			
.375/.385"	7,748			
PH, LB, 12' UL	8740			
CHEMICAL ANALYSIS				
C	Mn	P	HEAT#	8962038
.410	.690	.015	S	
			Pb	
			Si	.250
			Cr	.460
			Ni	.490
			Mo	.210
V	Al	Cu	Sn	Te
.005	.027	.100	.006	.000
			Bi	.000
			Sb	.000
			Cb	.001
			B	.0000
N DI (In)				
.0057	.000			

PHYSICAL ANALYSIS

Structure	Decarb	Hardness	YS-.2% OFF-PSI	Tensile-PSI
80X SPH		RB 95		85400
KLlong	XProduct-Area	Carbon Free	T.A.D. Decarb	NET APPROVED
	62	.000	.000	JOHN CARROLL

COMMENTS:

02/26/02 B.S. CZBT.

JOMINY HARDENABILITY

1 2 3 4 5 6 7 8 10 12 14 16 18 20 22 24 26 32

54

45

RECEIVED

JUN 19 2002

John



A DIVISION OF J.T. ADAMS CO., INC.

4520 WILLOW PARKWAY
CLEVELAND, OHIO 44125
PHONE (216) 641-3290
FAX (216) 641-1223
www.tensile.com

CERTIFIED TEST REPORT

Airfasco Industries Inc.
2655 Harrison Ave. SW
Canton OH 44706

Job No.: B4-198-395
Date: 7-22-14
Cust. PO#: 61111

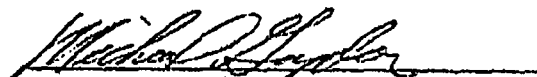
Description: 1 sample Mill: Republic Country of Melt: USA
Material: 8740 Heat# 8962033
Spec: AMS 6322N

TEST RESULTS

Product Analysis of Elements in % (OES per TTML C-011):

	<u>Actual</u>	<u>Requirements</u>
Carbon	0.40	0.38-0.43
Manganese	0.90	0.75-1.00
Phosphorus	0.016	0.025 Max.
Sulfur	0.009	0.025 Max.
Silicon	0.25	0.15-0.35
Chromium	0.49	0.40-0.60
Nickel	0.58	0.40-0.70
Molybdenum	0.25	0.20-0.30
Columbium	0.002	N/A
Aluminum	0.041	N/A
Copper	0.01	0.35 Max.
Vanadium	0.002	N/A
Titanium	0.002	N/A

The above conforms to specifications listed.


Authorized Agent



Page 1 of 1

This Report May Not Be Reproduced Except In Full

This report represents Tensile Testing interpretation of the results obtained from the test and is not to be construed as a Warranty or Warranty of the condition of the materials tested. Tensile Testing shall not be held liable for misinterpretation of conditions, loss, damage, injury or death arising from or attributable to delay preceding a test or subsequent to performance of a test.

Approved by Bruce Hogie
Revision Date: 2/13/2013

CERTIFICATE OF COMPLIANCE

SUPPLIER: **BERINGER PLATING, INC.**
1211 DeValera Ave.
Akron, OH 44310
330-633-8409 Fx 330-633-8447
sales@beringerplating.com

CUSTOMER: Airfasco Industries, Inc.

Beringer Invoice: 77940

P.O. Number: 60636

Part Number: AN5-15A

Lot Number: 23860

Lot Quantity: 1,253 / 6s. ^{27,700} pcs

Specification: Cadmium Plate per AMS-QQ-P-416C Type II, Class 2

Mercury Free Clause: No possibility exists for mercury contamination to occur during processing or testing of parts on this contract.

Coating Thickness: .0003 inches

Embrittlement Relief

Baked: NA Hours at F Within 1 Hour of Plating.

Inspection Level to applicable standard:

S-3 of MIL.-STD.-105D:

ASTM B602 Table II:

Aircraft Braking System:

4 %

1.50%

1%

ACC. X

Certified By:

James Beringer Jr.
President

Date: 12/20/2013



CERTIFICATION OF PROCESS

CUSTOMER: AIRFASCO INDUSTRIES, INC
2655 HARRISON AVE SW
CANTON OH 44706

THIS IS TO CERTIFY THAT BRITE METAL INC. HAS PROCESSED THE FOLLOWING MATERIAL IN ACCORDANCE WITH THE MOST WIDELY ACCEPTED METALLURGICAL PROCEDURE.

PO #: 60626 **WEIGHT:** 1253 **NO. BINS:** 1 **NO. PCS:** 27,700

PN#: AN5-15A **LOT#:** 23860 **MATERIAL#:** 8740

BM ORDER NO: 165109 **CORE HARD SPECS:** HRC 28-32

PROCESS TO: AMS 2759/1

DATE RECEIVED: 12/5/13

DATE SHIPPED:

HEAT TREATING TEST RESULTS

NUMBER OF SAMPLES: 3

CORE HARDNESS: 30-31RC

SURFACE HARDNESS: 30-31RC @.003

CASE DEPTH: ---

CORE HARDNESS AS QUENCHED: ----

INSPECTOR: JC

DATE: 12/10/13

AIRFASCO Industries

2655 Harrison Avenue SW Canton, OH 44706

Nondestructive Testing Certification Wet Fluorescent Magnetic Particle Inspection Technique

Part Data

Part Number	Lot Number	Dimensions	Part Description
AN5-15A	23860	5/16-24 X 1 23/32	BOLT-MACHINE, AIRCRAFT

Reference Data

Specification	Procedure Number	Acceptance Criteria
ASTM E1444-05	MT-1	No Cracks, NASM 6812

Inspection Equipment Data

Model Number	Manufacturer	Serial Number
H-800 Retro	Magnaflux Corporation	91R00150

Inspection Material Data

Particles	Mfr	Batch No.	Carrier	Mfr	Batch No.
14A	Magnaflux	10G078	MG II	Magnaflux	11K065

Technique Data


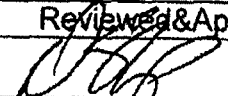
Type Current	Circular Field		Longitudinal Field	
	Headshot Amps	Central Conductor Amps	Coil shot Amps	Coil Turns
FWDC	200	N/A	1460	5

Particle application by the flow method, continuous technique
Demagnetization performed by the AC Coil method, Residual field +/- 3

Inspection Results

Lot Size	Inspection Sample Size	Quantity accepted	Quantity rejected
27700	50	50	0

Notes:

Performed by / Level	Reviewed & Approved by:	Date
 D. SHOUP ASNT NDT LEVEL III	 D. SHOUP ASNT NDT LIII #176608	1/3/14

**2655 Harrison Ave. SW
Canton, Ohio 44706-3047
Phone: 330-430-6190
Fax: 330-430-6199**

CERTIFICATE OF CONFORMANCE

ECAS

I Hereby Certify that on **04/11/17** Airfasco Industries provided the supplies called for by Contract/ PO Number **FL79150** in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

Quality Assurance Representative


WM. DENT

[illegible]



2655 Harrison Ave. SW
Canton, Ohio 44706-3047
Phone: 330-430-6190
Fax: 330-430-6199

PHYSICAL AND CHEMICAL CERTIFICATION

DATE MFG.: 01/08/16 PART NO.: AN6-13A per NASM6-13A rev. 3

AFC LOT NO.: 25482 QTY MFG.: 24,400

PROCUREMENT SPECIFICATION: Produced per NASM 6812

HEAT TREAT

VENDOR: Brite Metal CERTIFICATION NO.: 171014

PROCUREMENT SPECIFICATION: Heat Treat per AMS 2759

PLATING

VENDOR: Beringer Plating CERTIFICATION NO.: 91405

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS-QQ-P-416 D, Type II, Class 2

MATERIAL

MILL: Evrast/Michigan Wire COUNTRY OF MELT: USA HEAT: 102137

GRADE SPECIFICATION: Alloy Steel per AMS 6300 E, Type 4037, .390"

4037 MATERIAL CHEMISTRY											
ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.380	.770	.012	.001	.240	.070	.070	.219	.050	.040	

PHYSICAL PROPERTIES				
PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	10,100 lbs.	7,740 lbs.	8,280 lbs.	HRC 26-32
ACTUAL	12,956 lbs.	12,692 lbs.	8,939 lbs.	HRC 29-30

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

QS-082
REV 0
2/15

Airfasco Industries
Quality Assurance Representative:


T. West



Michigan Wire Tech, LLC

2487 West Main Street
Lowell, MI 49331
Phone (616) 897-6080
Fax (616) 897-6226

SOLD TO

G3 Steel Group/o AIRFASCO
2655 HARRISON AVE SW
CANTON, OH 44706
USA

WORK ORDER
F2330

CERTIFICATION

HEAT NO.
1Q2137
SALES ORDER / RLS
F2330 / 1
ISO 9001-2008 REGISTERED

CERT# 911.01

CUSTOMER P.O.	CUSTOMER PART	QUANTITY	CARRIERS	LADING NO	SHIPMENT DATE					
61667-2		10,304 Lbs	4	00117024	04/27/2015					
SPECIFICATION G614037-303900-MA A-4037, AKFG, CHQ WIRE, SAFS Zinc Phosphate and Lube Coating, Size:0.389/0.391										
CERTIFICATION REQUIREMENTS										
Chemical Properties										
C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	N
.38	.24	.77	.012	.001	.05	.07	.07	.219	.040	.0042
Physical Properties										
Mill Source Grain Size Rocky Mount 6										
Mechanical Properties										
TEST	UNITS	Results								
% Spheroidization	%	85								
Tensile Strength	KSI	73.8								
<small>Merchandise covered by this invoice is warranted to be free from defects in workmanship or material but not for any specific length of time, type or measure of service. No claim for allowance will be recognized unless presented in writing within 10 days time after receipt of material. Our maximum liability for any claim predicated upon defective merchandise is limited to replacement of it, or to repayment of it, or to repayment of the purchase price thereof, as we elect. Material cut to specific length or size cannot be returned for credit and request for cancellation of such orders will not be considered if manufacture has been commenced. Buyer, by acceptance of this merchandise covered by this invoice, agrees to the foregoing terms and conditions and those set forth on the reverse hereof. The recording of sales, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal statutes including Federal law, Title 18, Chapter 47.</small>										
<small>REPRODUCTION OF THIS CERTIFICATION IS NOT ALLOWED UNLESS IN FULL.</small>										
<small>Wire Tech, Inc. metallurgical laboratory is accredited in the following test: chemical analysis per ASTM E 415, mechanical testing per ASTM A 370, Rockwell hardness per ASTM E 18, metallographic mount preparation per ASTM E 3, decarburization depth per ASTM E 1077, IP 140, inclusion rating per ASTM E 45, decarburization performed as per IP 140.</small>										
<small>The reported Chemical and Physical Properties are Mill Source results. Transcribed from mill certificates. HRB(W) are hardness results performed with a 1/16" carbide ball. Unless otherwise specified, HRB and HRC results are conversions from ASTM A370 tables 1 and 2. *Test result not covered by our current A2LA accreditation. Tests which have been undertaken by a subcontractor laboratory that is not accredited are not endorsed by A2LA or covered by Wire Tech, Inc. A2LA accreditation.</small>										
<small>TEST RESULTS RELATE ONLY TO THE ITEMS TESTED.</small>										
<small>LATEST REVISIONS OF ASTM</small>										
<small>DFAR Material per Clauses 252.225-7014 ALT. 1, 252.225-7009, & 225.003(9)</small>										
<small>Material is free of mercury, radium, or alpha contamination.</small>										



Michigan Wire Tech, LLC

2487 W. Main Street ph(616)897-6080
P.O. Box 70 fx(616)897-6226
Lowell, MI 49331

THIS REPORT SHALL NOT BE REPRODUCED IN WHOLE
OR IN PART WITHOUT THE PRIOR WRITTEN APPROVAL
OF MICHIGAN WIRE TECH LLC

We hereby certify that test results shown are correct as
contained in the records of the company. These results
relate only to the items tested.

Kevin Day Director of Quality Assurance

Kevin Day

Test Report

36110

Purchase Order - Sold To 61293 H7962		Purchase Order - Ship To		Sold To G3	
Vendor Michigan Wire Tech LLC 2487 West Main St. Lowell, MI 49331		Report Date 10-6-14	J# J123012		
		Shipped Date	Packing Slip #	Ship To	
Specification NA	Size 390	Grade 4037	Quantity 2	Weight 10142	

Tensile KSI	Hardness HRB	ROA %	Spheroidization % Minimum	Decarb 0.001 Inches TAD
71.6	80	70.3	90	1

Test Analysis (wt. %) All tests were performed by Michigan Wire Tech LLC, unless otherwise specified, in accordance with the following: Mechanical Properties per ASTM E8, Rockwell Hardness per ASTM E18, Spheroidization per IFI-140 and Decarburization per ASTM E1077. All tests performed to the current standard date, unless otherwise noted.

Heat #	C	Mn	P	S	SI	Cu	Ni	CR	MO	AL	B	SN	V	N	CB	MILL
1Q2137A	.38	.77	.012	.001	.24	.05	.07	.07	.219	.040	.0001	.002	.006	.0042		EVRAZ



A DIVISION OF J.T. ADAMS CO., INC.

4520 WILLOW PARKWAY
CLEVELAND, OHIO 44125
PHONE (216) 641-3290
FAX (216) 641-1223
www.tensile.com

CERTIFIED TEST REPORT

Airfasco Industries Inc.
2655 Harrison Ave. SW
Canton OH 44706

Job No.: 1501-15-0685
Date: 1-19-15
Cust. PO#: 61593

Description: 1 sample Mill: Evraz Country of Melt: USA

Material: 4037 Heat# 1Q2137

Spec: AMS 6300E

TEST RESULTS

Product Analysis of Elements in % (OES per TTML C-01D):

	<u>Actual</u>	<u>Requirements</u>
Carbon	0.38	0.35-0.40
Manganese	0.80	0.70-0.90
Phosphorus	0.008	0.040 Max.
Sulfur	<0.001	0.040 Max.
Silicon	0.23	0.15-0.35
Chromium	0.06	0.20 Max.
Nickel	0.07	0.25 Max.
Molybdenum	0.22	0.20-0.30
Columbium	<0.001	N/A
Aluminum	0.045	N/A
Copper	0.05	0.35 Max.
Vanadium	0.006	N/A
Titanium	0.003	N/A

The above conforms to specifications listed.


Authorized Agent



Page 1 of 1

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BRITE METAL

CERTIFICATION OF PROCESS

CUSTOMER: AIRFASCO INDUSTRIES, INC
2655 HARRISON AVE SW
CANTON OH 44706

THIS IS TO CERTIFY THAT BRITE METAL INC. HAS PROCESSED THE FOLLOWING MATERIAL IN ACCORDANCE WITH THE MOST WIDELY ACCEPTED METALLURGICAL PROCEDURE.

PO #: 62330 **WEIGHT:** 1,429 **NO. BINS:** 1 **NO. PCS:** 24,400

PN#: AN6-13A **LOT#:** 25482 **MATERIAL#:** 4037

BM ORDER NO: 171014 **CORE HARD SPECS:** HRC 28-32

PROCESS TO: AMS 2759

DATE RECEIVED: 12/01/15 **DATE SHIPPED:**

HEAT TREATING TEST RESULTS

CORE HARDNESS: _____ **RC 29 / 30** _____

SURFACE HARDNESS: _____ **RC 29 / 30 @.003** _____

CASE DEPTH: _____ **N/A** _____

CORE HARDNESS AS QUENCHED: _____ **N/A** _____

INSPECTOR: _____ **SK** _____

DATE: _____ **12-14-15** _____

Approved by Bruce Hogle
Revision Date: 2/13/2013

CERTIFICATE OF COMPLIANCE

SUPPLIER: **BERINGER PLATING, INC.**
1211 DeValera Ave.
Akron, OH 44310
330-633-8409 Fx 330-633-8447
sales@beringerplating.com

CUSTOMER: Airfasco Industries, Inc.

Beringer Invoice: 91405

P.O. Number: 62396

Part Number: AN6-13A

Lot Number: 25482-01

Lot Quantity: 24,400 pcs

Specification: Cadmium Plate per AMS-QQ-P-416D Type II, Class 2

Mercury Free Clause: No possibility exists for mercury contamination to occur during processing or testing of parts on this contract.

Coating Thickness: .0003 inches

Embrittlement Relief

Baked: N/A Hours at F Within 1 Hour of Plating.

Inspection Level to applicable standard:

S-3 of MIL-STD-105D:

ASTM B602 Table II:

Aircraft Braking System:

4 %

1.50%

1%

ACC. X

Certified By:

James Beringer Jr.
President

Date: 1/5/2016

AIRFASCO Industries

2655 Harrison Avenue SW Canton, OH 44706

Nondestructive Testing Certification Wet Fluorescent Magnetic Particle Inspection Technique

Part Data

Part Number	Lot Number	Dimensions	Part Description
AN6-13A	25482	.3750-24 X 1.453	BOLT-MACHINE, AIRCRAFT

Reference Data

Specification	Procedure Number	Acceptance Criteria
ASTM E1444	MT-1	No Cracks, NASM6812

Inspection Equipment Data

Model Number	Manufacturer	Serial Number
H-800 Retro	Magnaflux Corporation	91R00150

Inspection Material Data

Particles	Mfr	Batch No.	Carrier	Mfr	Batch No.
14A	Magnaflux	10G078	MG II	Magnaflux	14B056

Technique Data

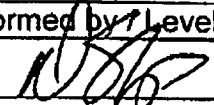
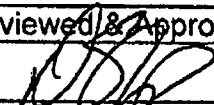
Type Current	Circular Field		Longitudinal Field	
	Headshot Amps	Central Conductor Amps	Coil shot Amps	Coil Turns
FWDC	250	N/A	1990	5

Particle application by the flow method, continuous technique
Demagnetization performed by the AC Coil method, Residual field +/- 3

Inspection Results

Lot Size	Inspection Sample Size	Quantity accepted	Quantity rejected
24400	50	50	0

Notes:

Performed by Level	Reviewed & Approved by:	Date
		1/8/16
D. SHOUP ASNT NDT LEVEL III	D. SHOUP ASNT NDT LIII #176608	



CHERRY®
AEROSPACE

SPS Fastener Division, a PCC Company

Cherry Aerospace
1224 East Warner Avenue
Post Office Box 2157
Santa Ana, CA 92707-0157
USA



PACKING LIST

Order No: SO388563

Page: 1

Order Date: 12/22/14

Print Date: 08/01/15



Sold-To: 10015644

Ship-To: 10042818

S O L D T O	MID-STATE AEROSPACE INC ACCOUNTS PAYABLE 710 N LINDENWOOD DR OLATHE, KS 66062-2689 USA
----------------------------	--

S H I P T O	MID-STATE AEROSPACE INC 710 N LINDENWOOD DR OLATHE, KS 66062 USA
----------------------------	---

Salesperson (s):112

Purchase Order: 00103023

Credit Terms: 1*10, 30

1*10, Net 30

Ship Via: UPS

FOB: Origin - Collect

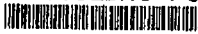

Remarks:

SHIP VIA REDSTONE LOGISTICS; 1(855)367-7600

ECCN: EAR99

GOODS OF UNITED STATES ORIGIN

Unless otherwise specified on this order, Cherry will manufacture and certify parts to the part number's latest revision. Latest revisions are shown at <https://bizpartner.cherryaerospace.com/partrevisions.htm> under "Part Number Revision List".

Ln	Item Number	Site T Location	Lot/Serial	Qty Open		Promised
				Qty to Ship	UM	
22	CR3212-4-03 Customer Item: NAS9302B-4-03 NAS9302BNS-4-03 	1600	EZL-A67 87955389	5000.0	EA	08/14/15 

TEST REPORTS ENCLOSED = DO NOT DESTROY

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations; Diversion contrary to US law is prohibited

Packing List



CHERRY®
AEROSPACE
SPS Fastener Division, a PCC Company

Cherry Aerospace
1224 East Warner Avenue
Post Office Box 2157
Santa Ana, CA 92707-0157
USA



PACKING LIST

Order No: S0388563
Order Date: 12/22/14
Print Date: 08/01/15

Page: 1



Sold-To: 10015644

Ship-To: 10042818

S O L D T O	MID-STATE AEROSPACE INC
	ACCOUNTS PAYABLE
	710 N LINDENWOOD DR
	OLATHE, KS 66062-2689
	USA

S H I P T O	MID-STATE AEROSPACE INC
	710 N LINDENWOOD DR
	OLATHE, KS 66062
	USA

Salesperson (s): 112

Purchase Order: 00103023

Credit Terms: 1&10, 30
1&10, Net 30

Ship Via: UPS

FOB: Origin - Collect

Remarks:

SHIP VIA REDSTONE LOGISTICS; 1(855)367-7600

ECCN: EAR99

GOODS OF UNITED STATES ORIGIN

Unless otherwise specified on this order, Cherry will manufacture and certify parts to the part number's latest revision. Latest revisions are shown at <https://bizpartner.cherryaerospace.com/partrevisions.htm> under "Part Number Revision List".

Ln	Item Number	Site		Qty Open		Promised
		T	Location/Lot/Serial	Qty to Ship	UM	
22	CR3212-4-03		1600		EA	08/14/15
	Customer Item: NAS9302B-4-03					
	NAS9302BNS-4-03					
			EZL-A67 87955389	5000.0	()	

TEST REPORTS ENCLOSED = DO NOT DESTROY

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited

CERTIFICATION

ATTENTION: PURCHASING DEPARTMENT

The material and/or parts we are furnishing in this shipment (as shown above) on the subject Purchase Order conform to the order and applicable specifications. Evidence that the material and/or parts meet the specifications and results of all tests for each lot affected will be in our files and will be available for your inspection at any reasonable time.

Quality Assurance Representative

Signed

DAWN MILLER



CHERRY[®] AEROSPACE
SPS Fastener Division, a PCC Company

1224 East Warner Avenue
Santa Ana, CA 92707-0157



Accredited Chemical Processing
Heat Treating
ISO/IEC 17025
Material Testing Lab

Final Inspection & Test Report CherryMax[®] Rivet

An ISO9001 and AS9100 registered company. OASIS #6111041606

Part Numbers	Rev	Proc. Spec.	Rev
CR3212-4-03	AE	PS-CMR-3000	R
CR3212PR-4-03	AE	PS-CMR-3000	R

**** See 2nd Page for the Customer Parts**

Lot I.D. No.: **87955389**

Lot Size: **31,700**

MFG. Date: **July 22, 2015**

ASSEMBLY DATA

TYPE	ID #	CERT #	MATERIAL	FINISH	LUBE
Rivet	88077023	A77147	QQ-A-430/5056	MIL-C-5541 CLEAR CL1A	None
Stem	88072232	A76897	AMS6322 / 8740ST	QQ-P-416/T2CL2/CAD PL	None
Collar	00000000	A77107	A-286 / AMS 5731, 5737	Passivate per AMS2700	None

W.O. #: 06020108

Final Lube: None

QUALITY CONFORMANCE/ACCEPTANCE RESULTS

MIN REQ'D	INSTALLED SHEAR		TENSION		SPINDLE RETENTION			DISASSEMBLY
	531		285		125			10
SAMPLE SIZE	8	N/A	8	N/A	5	8	N/A	5
SPECS	C-N-M	B	C-N-M	B	C-N-M	M	B	C-N-M
RESULTS	777		375		277	219		22
	780		381		257	230		47
	801		375		250	208		42
	782		381		236	243		50
	787		388		268	230		74
	791		380			203		
	780		386			199		
	810		377			218		

PCS.

ITEM

STATUS

PCS.

ITEM

STATUS

20

EXAMINATION

PASS

20

INSTALLATION (Min and Max Grips)

PASS

Comments:

Blind Fastener

Tr. Rev: -

Q Code

Rev. Date: 7/22/2015

V09

Inspector

V Villegas



The parts contained in this shipment have been manufactured and inspected in accordance with TSO-C148. The conditions and tests required for TSO approval of this article are minimum performance standards. Aircraft fasteners approved under this TSO are not necessarily interchangeable with other aircraft fasteners approved under this TSO. Fasteners of similar dimensional properties may have widely varying performance and metallurgical properties. Substitution of parts may only be done if acceptable to or approved by the Administrator.

This test report shall not be reproduced except in full, without the written approval of the laboratory.
The recording of false, fictitious, or fraudulent statement or entries on the certificate may be punished as a felony under Federal law.



CHERRY AEROSPACE
SPT Fastcap Division, a PCC Company

1224 East Warner Avenue
Santa Ana, CA 92707-0157



Accredited
Nadcap[™]

Chemical Processing
Heat Treating
ISO/IEC 17025
Material Testing Lab

Final Inspection & Test Report CherryMax® Rivet

An ISO9001 and AS9100 registered company. OASIS #6111041606

Customer Parts List

Lot I.D. No.: 87955389

Rev: -

<u>Customer Part Number</u>	<u>Rev</u>	<u>Proc. Spec.</u>	<u>Rev</u>
NAS9302B-4-03	6	NAS1686	4
NAS9302BNS-4-03	6	NAS1686	4



Product Certification And Testing Report

A77147



Beneke Wire Company-1-
854356

Customer:
CHERRY AEROSPACE LLC
ATTN: ACCTS. PAYABLE
1224 EAST WARNER AVENUE
P.O. BOX 2157
SANTA ANA CA 92707-0157

Date >> 5/20/2015

Customer PO No.	BWC Lot No.	Date Shipped:
BP201303	27272	5/20/2015
Cust Item ID : M005.1230		

BWC Item No. 501230832041A01BWC
Description: .123" DIA. + - .0005" #4F 5056 - H32
#4 FINISH, ALUMINUM COLD HEADING WIRE X 22"
BLOCKWOUND 100# COILS.

Specifications:

CUST SPEC M-5 REV. T
FED SPEC QQ-A-430 REV. C

Chemical Limits										Test Results										
Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total	Aluminum Remainder	Case No.	lbs	Diameter (in)	Tensile (psi)	Yield (psi)	Peak Load (lbs)	EL %	Grain Size	
5056	.30	.40	.10	.05 - .20	4.5 - 5.6	.05 - .20	.10		.05	.15										
854356	.04	.09	.00	.07	4.7	.07	.01	.01				44950-1	336	0.1230	47,180.0		560.7			
Total Weight:													336							

JUN 02 2015



Beneke Wire Company

WE CERTIFY THAT SAMPLES REPRESENTING THE MATERIAL COVERED IN THIS REPORT HAVE BEEN INSPECTED AND FOUND TO MEET THE COMPOSITION LIMITS AND MECHANICAL PROPERTIES SHOWN ABOVE. ANY WARRANTY IS LIMITED TO THAT SHOWN ON BENEKE WIRE COMPANY'S STANDARD TERMS AND CONDITIONS OF SALE.

5540 National Turnpike

Louisville, KY 40214

Authorized
Signature

Shannon King, Plant Metallurgist
Phone: (502) 367-6434

KAISER ALUMINUM FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT
<http://Online.KaiserAluminum.com>

Kaiser Aluminum Fabricated Products, LLC
600 Kaiser Drive
Heath, OH 43056-1088
740-522-1151

CUSTOMER PO NUMBER:		CUSTOMER PART NUMBER:		PRODUCT DESCRIPTION:	
KAISER ORDER NUMBER:		LINE ITEM:	SHIP DATE:	ALLOY:	TEMPER:
172567493		1	01/13/2015	K540	F
WEIGHT SHIPPED:	QUANTITY:	B/L NUMBER:	DIAM/DAF/THKNS:	WIDTH:	LENGTH:
9654 lbs.	45 pcs.	2520		0.000 in.	0.0 in.
SHIP TO:			SOLD TO:		
BENEKE WIRE COMPANY 5540 NATIONAL TURN PIKE LOUISVILLE, KY 40214			BENEKE WIRE COMPANY 5540 NATIONAL TURN PIKE LOUISVILLE, KY 40214		

Test Code: 4000

Actual Physical Properties

Lot No.

854356 0.0

Chemical Composition, WT. % (Aluminum Remainder)

Lot	Cast/Drop	ChemID	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
854356										
79-3F2	Act.		0.04	0.09	0.00	0.07	4.7	0.07	0.01	0.01
194805										
Chemical	Min					0.05	4.5	0.05		
Limits	Max		0.30	0.40	0.10	0.20	4.9	0.20	0.10	0.05
	Others	Each	0.05		Max		Total	0.15	Max	

JUN 02 2015



Plant Serial: 39174

Kaiser Order Number: 172567493

Line Item: 1

KAISER ALUMINUM

FABRICATED PRODUCTS

Kaiser Aluminum Fabricated Products, LLC
600 Kaiser Drive
Heath, OH 43056-1088
740-522-1151

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

Miscellaneous Notes

Made in USA

Mercury is not a normal contaminant in aluminum alloys. Neither mercury nor any of its compounds were utilized by Kaiser Aluminum in the manufacture of this material. Actual (Act) chemical composition is from representative samples taken during the ingot casting process. Independent chemical analysis will vary from these values because of natural variation in the process and testing error. This test report shall not be reproduced, except in full, without the written approval of Kaiser Aluminum. The recording of false, fictitious, or fraudulent statements or entries on the certificate may be punished as a felony under federal law. Chemical analysis performed in accordance with ASTM E 1251-11. The Newark facility is AS9100C:2009 approved. The Newark Laboratory is NADCAP approved for chemical testing (OES).

The products you inquired and ordered are not governed by any applicable industry standard or custom specifications. They are produced, tested and released as such. By placing an order, you acknowledge and accept the full responsibility and liability for their fitness for the intended end use or end uses.

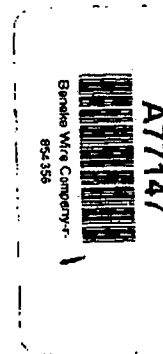
CERTIFICATION

Kaiser Aluminum Fabricated Products, LLP ("Kaiser") hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales order acknowledgement form. Any warranty is limited to that shown on Kaiser's standard general terms and conditions.

John R. Despina, Technical Manager

John R. Despina

JUN 02 2015



Plant Serial: 39174

Kaiser Order Number: 172567493

Line Item: 1



WireTech, Inc.

6440 E. Canning Street
Los Angeles, CA 90040
Phone (323) 722-4933
Fax (323) 721-2738

SOLD TO

CHERRY AEROSPACE LLC
1224 E. WARNER AVENUE
SANTA ANA, CA 92705-5414
USA

WORK ORDER
112727

CERTIFICATION

HEAT NO.
10352410
SALES ORDER / RLS
858832 / 1
ISO 9001-2000 REGISTERED



MECHANICAL TESTING
CERT # 911.01

CERT# 911.01

CUSTOMER P.O. VP201301	CUSTOMER PART m272.1040	QUANTITY 3,486 Lbs	CARRIERS 5	LADING NO 00116852	SHIPMENT DATE 04/17/2015			
SPECIFICATION C208740-101040A A-8740, AQ, SKFG, CHQ WIRE, SEAM & DECARB FREE, SAIP Zinc Phosphate, Lime & Stearate Coating, Size:0.1035/0.1045 Specifications: AMS 2301K, AMS6322P, MIL-S-6049A, AMEND1, ASTM-A-547, AMS-S-6049-A, M 272.1040 REV. T								
CERTIFICATION REQUIREMENTS								
Chemical Properties								
C	Si	Mn	P	S	Cu	Ni	Cr	Mo
.41	.27	.85	.009	.004	.09	.44	.53	.21
Physical Properties								
Grain Size	Jominy 1	Jominy 2	Jominy 3	Inclusions	Macro	Cleanliness	Mill Source	
6 J5=55	J8=48	J10=45	S2-R1-C2	GOOD	F&S=0	Charter		
Country of Origin								
USA - DFAR Compliant								
Mechanical Properties								
TEST	UNITS	Results						
Tensile Strength	KSI	129.7						
Yield Strength	KSI	110.3						
% Elongation	%	6						
% Reduction of Area	%	60						
Rockwell Hardness C Scale	HRC	28						
Decarb (Total)	In	0.00						

MAY 08 2015

Merchandise covered by this invoice is warranted to be free from defects in workmanship or material but not for any specific length of time, type or measure of service. No claim for allowance will be recognized unless presented in writing within 10 days time after receipt of material. Our maximum liability for any claim predicated upon defective merchandise is limited to replacement of it, or to repayment of it, or to repayment of the purchase price thereof, as we elect. Material cut to specific length or size cannot be returned for credit and request for cancellation of such orders will not be considered if manufacture has been commenced. Buyer, by acceptance of the merchandise covered by this invoice, agrees to the foregoing terms and conditions and those set forth on the reverse hereof. *The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal statutes including Federal law, Title 18, Chapter 47.*

REPRODUCTION OF THIS CERTIFICATION IS NOT ALLOWED UNLESS IN FULL.

WireTech, Inc. metallurgical laboratory is accredited in the following test: chemical analysis per ASTM E 415, mechanical testing per ASTM A 370, Rockwell hardness per ASTM E 18, metallographic mount preparation per ASTM E 3, decarburization depth per ASTM E 1077, IFI 140, Inclusion rating per ASTM E 45, decarburization performed as per IFI 140. The reported Chemical and Physical Properties are Mill Source results. Transcribed from mill certificates. HRB(HV) are hardness results performed with a 1/16" carbide ball. Unless otherwise specified, HRB and HRC results are conversions from ASTM A370 tables 1 and 2. *Test result not covered by our current A2LA accreditation. Tests which have been undertaken by a subcontractor laboratory that is not accredited are not endorsed by A2LA or covered by WireTech, Inc. A2LA accreditation.

TEST RESULTS RELATE ONLY TO THE ITEMS TESTED.

"LATEST REVISIONS OF ASTM"



DFAR Material per Clauses 252.225-7014 ALT. 1, 252.225-7009, & 225.003(9)

Material is free of mercury, radium, or alpha contamination



CHARTER STEEL

A Division of
Charter Manufacturing Company, Inc.

EMAIL

1658 Cold Springs Road
Saukville, Wisconsin 53080
(262) 268-2400
1-800-437-8789
Fax (262) 268-2570

Melted in USA Manufactured in USA

CHARTER STEEL TEST REPORT

Wiretech Incorporated
6440 East Canning Street
Los Angeles, CA-90040
Kind Attn : Cert To Contact

Cust P.O.	7368-3
Customer Part #	8740C1A060-C
Charter Sales Order	70059176
Heat #	10352410
Ship Lot #	4315192
Grade	8740 R SK FG AQ 1/4
Process	HRSA
Finish Size	1/4
Ship date	08-JAN-15

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and that it satisfies these requirements. The recording of false, fictitious and fraudulent statements or entries on this document may be punishable as a felony under federal statute.

Lab Code: 7388

CHEM	C	MN	P	S	SI	NI	CR	MO	CU	SN	V
%Wt	.41	.95	.009	.004	.270	.44	.53	.21	.09	.007	.002
	AL	N	B	TI	NB						
	.025	.0060	.0001	.002	.002						

JOMINY(HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J12
57	57	57	57	55	52	50	48	47	45	42
J14	J16	J18	J20	J24	J28	J32				
40	38	36	35	33	31	30				

JOMINY SAMPLE TYPE ENGLISH=C

MACRO ETCH SAMPLE TYPE=R

MACRO ETCH SURFACE=1

MACRO ETCH RANDOM=1

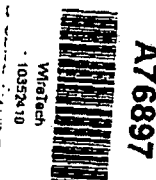
MACRO ETCH CENTER=1

AMS 2301 FREQUENCY AVERAGE=.00
AMS 2301 SEVERITY AVERAGE=.00
GRAIN SIZE LAB=0358-01

MIN. GRAIN SIZE=8

AMS 2301 FREQUENCY INDIVIDUAL=.00
AMS 2301 SEVERITY INDIVIDUAL=.00
MAX. GRAIN SIZE=8

MAY 08 2015



Test results of Rolling Lot # 1142900

REDUCTION RATIO=616:1

		Test results of Processing Lot #4312580, 4315192			
TENSILE (KSI)	# of Tests	Min Value	Max Value	Mean Value	
REDUCTION OF AREA (%)	2.0	81.5	82.3	81.9	TENSILE LAB = 0358-02
	2	73	75	74	RA LAB = 0358-02

NUM DECARB=2
NUM SPHERO=2

FREE FERRITE DECARB (Inch)=.000
SPHERODIZATION (%)=85.0

FREE FERR & PARTIAL DECARB (Inch)=.003
CP SPHERO % LAB=0358-02

Specifications: Manufactured per Charter Steel Quality Manual Rev Date 9/12/12
Meets customer specifications with any applicable Charter Steel exceptions for the following customer documents:
Customer Document = AMS8322P/AMS2301K/COP3010M/BS2S147:1976 CHEM ONLY Revision = Dated =

Additional Comments:

Charter Steel
Saukville, WI, USA



ACCREDITED
Testing Laboratory

This MTR supersedes all previously dated MTRs for this order

Janice Barnard

Janice Barnard
Manager of Quality Assurance
Printed Date : 01/08/2015

Rem: Load1,Fax0,Mail0

The following statements are applicable to the material described on the front of this Test Report:

1. Except as noted, the steel supplied for this order was melted, rolled, and processed in the United States meeting DFARS compliance, LEEDS compliance, REACH compliance, ROHS-WEEE compliance, and Conflict Materials Restrictions.
2. Mercury was not used during the manufacture of this product, nor was the steel contaminated with mercury during processing.
3. Unless directed by the customer, there are no welds in any of the coils produced for this order.
4. The laboratory that generated the analytical or test results can be identified by the following key:

Certificate Number	Lab Code	Laboratory	Address
0358-01	7388	CSSM Charter Steel Melting Division	1658 Cold Springs Road, Saukville, WI 53080
0358-02	8171	CSSR/ CSSP Charter Steel Rolling/ Processing Division	1658 Cold Springs Road, Saukville, WI 53080
0358-03	123633	CSFP Charter Steel Ohio Processing Division	6255 US Highway 23, Rising Sun, OH 43457
0358-04	125544	CSCM/ CSCR Charter Steel Cleveland	4300 E. 49th St., Cuyahoga Heights, OH 44125-1004
*	*	--	Subcontracted test performed by laboratory not in Charter Steel System

5. When run by a Charter Steel laboratory, the following tests were performed according to the latest revisions of the specifications listed below, as noted in the Charter Steel Laboratory Quality Manual:

Test	Specifications	CSSM	CSSR/ CSSP	CSFP	CSCM/ CSCR
Chemistry Analysis	ASTM E415; ASTM E1019	X			X
Macroetch	ASTM E381	X			X
Hardenability (Jominy)	ASTM A255; SAE J406; JIS G0561	X			X
Grain Size	ASTM E112	X	X	X	X
Tensile Test	ASTM E8; ASTM A370		X	X	X
Rockwell Hardness	ASTM E18; ASTM A370	X	X	X	X
Microstructure (spheroidization)	ASTM A892		X	X	
Inclusion Content (Methods A, E)	ASTM E45		X		X
Decarburization	ASTM E1077		X	X	X

Charter Steel has been accredited to perform all of the above tests by the American Association for Laboratory Accreditation (A2LA). These accreditations expire 1/31/15. All other test results associated with a Charter Steel laboratory that appear on the front of this report, if any, were performed according to documented procedures developed by Charter Steel and are not accredited by A2LA.

6. The test results on the front of this report are the true values measured on the samples taken from the production lot. They do not apply to any other sample.
7. This test report cannot be reproduced or distributed except in full without the written permission of Charter Steel. The primary customer whose name and address appear on the front of this form may reproduce this test report subject to the following restrictions:
 - It may be distributed only to their customers
 - Both sides of all pages must be reproduced in full
8. This certification is given subject to the terms and conditions of sale provided in Charter Steel's acknowledgement (designated by our Sales Order number) to the customer's purchase order. Both order numbers appear on the front page of this Report.
9. Where the customer has provided a specification, the results on the front of this test report conform to that specification unless otherwise noted on this test report.



MAY 08 2015



Certificate of Conformance

Sold To: CHERRY AEROSPACE
SANTA ANA OPERATIONS
1224 EAST WARNER AVE
SANTA ANA, CA 92705-5414

Date Shipped: 05/14/2015
PO #: VP201504
Radcliff No.: 135820
Heat No.: QM707/25
Qty. Shipped: 90 LBS-8-BLACK MIG
SPOOLS

Item Description

.006 X .011 X .056 *** A286 Stainless Steel SPECIAL SHAPE AMS 5731 REV L, AMS
5737 REV P CHEM
ONLY

Melting Country: France

Producing Country: United States

Notes:

PART# M189.44 REV W
CONSIGNMENT ORDER

Chemical Analysis

Al: 0.15%	B: 0.006%	Bi: <0.00002%	C: 0.03%
Co: 0.16%	Cr: 14.84%	Cu: 0.16%	Fe: BAL%
Mn: 1.75%	Mo: 1.27%	Ni: 24.56%	P: 0.018%
Pb: <0.0001%	S: 0.001%	Si: 0.08%	Ti: 2.18%
V: 0.3%			

Mechanical Properties

Tensile: 91 KSI

JUN 02 2015



We certify that the chemical analysis, physical properties, and mechanical test results are correct as contained in our records, and that they conform to customer requirements.

Material as shipped, is free from mercury contamination.

All material complies with RoHS and REACH directives unless a lead plating has been specified.

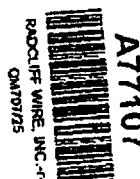
Shipment does not contain any counterfeit material.

Material is DFAR compliant

Lisa Piatek

Lisa Piatek

Certification Clerk



PERTH, ON
ERIN, ON
DUMAS, AR
LANCASTER, SC

813-267-9752 FAX 813-267-8617
619-833-8832 FAX 518-833-2213
870-382-2880 FAX 870-382-6888
803-283-3353 FAX 803-283-8303



FOND DU LAC, WI
UNION, IL
PERRIS, CA

920-928-0808 FAX 920-928-0852
815-923-2131 FAX 815-923-2126
951-657-2105 FAX 951-943-6061

CENTRAL WIRE
6509 OLSON ROAD
TEL: 815-923-2131

UNION, IL 60180-9730
FAX: 815-923-2128

THE LEADING MANUFACTURER OF STAINLESS STEEL AND NICKEL ALLOY WIRE PRODUCTS
EXECUTIVE OFFICES: PERTH, ON CANADA - EMAIL: sales@centralwire.com

CERTIFICATE OF CONFORMANCE

SOLD
TO

RADCLIFF WIRE INC.
P. O. BOX 603
BRISTOL

CT 06011-0603

SHIP
TO

RADCLIFF WIRE INC.
97 RONZO ROAD
BRISTOL,

CT 06011-0603

USA

USA

CUSTOMER'S PO NO. 46499	TYPE OF CERT Customer	CUSTOMER 124610	ORDER NO. 1181606	WORK ORDER 6 4143741	DATE SHIPPED 1/08/15
SPECIFICATIONS:					

ITEM DESCRIPTION		
DESCRIPTION	SPEC. CLASS	HEAT
Forming A286SF SKIN PASSED Bright .0300 200LB. Plas Clean	Melt mill Aperam Country of origin France	QM707/25
	QTY SHIP (LB) 450	044

CHEMICAL ANALYSIS						
C .03	MN 1.75	SI .08	P .018	S .001	CR 14.84	NI 24.56
MO 1.27	CU .16	CO .16	AL .15	TI 2.18	FE Balance	B .006
V .30	BI < .00002	PB < .0001				

MECHANICAL PROPERTIES						
AS SHIPPED PROPERTIES:						
TENSILE 114.000 KSI MIN	TENSILE 118.000 KSI MAX					
AFTER HEAT TREAT PROPERTIES:						

JUN 02 2015

RADCLIFF WIRE, INC.
QM707/25

A77107

* WIRE IS DFARS 252.225-7009 COMPLIANT *
"PASSIVATED IN PROCESS"

The material as shipped is free from mercury contamination. I certify the chemical analysis and physical and mechanical test results reported above are correct as contained in the records of the company.

Very truly yours,

AUTHORIZED SIGNATURE

Opelium

CERTIFICAT DE RECEPTION 3.1-EN 10204 n° C064334/2
 Inspection certificate - Abnahmeprüfzeugnis

Usine - Works - Werk
 Alloys Imphy
 58150 IMPHY FRANCE
 Téléphone: 03 86 21 30 00
 Télécopie: 03 86 21 31 00

Client : CENTRAL W UNION
 Customer :
 Kunde :
 V/Commande : 2009897
 Your order :
 Ihre Bestell. Nr :
 du 07.07.2011
 Von :
 Spécification : D.3.PRS.010.S REV.B.05/05/11
 Specification :
 Vorschrift :

N/Référence : 303807/02
 Our reference :
 Unser Auftrag Nr. :

Produit : SY 286 WIRE ROD
 Product : DIAM/12,2000/MM
 Erzeugnisform : SS A286 : VAR (.480")
 Etat de livraison : PEEL-COLDFINISH
 Condition of delivery :
 Lieferzustand :
 N° de fabric. : 4100255743
 Manufact. Nr :
 Fabrik. Nr :
 Poids : 2969,600 LB
 Weight :
 Gewicht :
 Nombre : 5 PI.
 Part. No :
 Stückzahl :

COMPOSITION CHIMIQUE (1% poids) CHEMICAL COMPOSITION (1% weight) CHEMISCHE ZUSAMMENSETZUNG (1% Gewicht)									
Coulée N° : QM707/25 Heat Nr : Schmelze Nr :									
.03	1.75	.08	.001	.018	24.56	14.84	1.27	.16	.16
.30	.15	2.18	< .0001	< .00002	.006	bal.			

CARACTERISTIQUES MECANQUES ET AUTRES ESSAIS / TESTS RESULTS

ETAT DE LIVRAISON
 CONDITION OF DELIVERY

RESISTANCE..... TENSILE STRENGTH..... : 622 MPA
 GRAIN ASTM..... SIZE ASTM..... : 7 ASTM

HYPERTREMPE 980°1H EAU+VIEILLISSEMENT 720°16H AIR
 HEAT TREATMENT OF SPECIMEN 1800°F1H WATER+1325°F 16H AIR

LIMITE ELASTIQUE..... YIELD STRENGTH 0.2%..... : 734 MPA
 RESISTANCE..... TENSILE STRENGTH..... : 1095 MPA
 ALLONGEMENT..... ELONGATION SUR 40..... : 30.0 %
 STRICTION..... RED. OF AREA..... : 54.0 %
 DURETE HB..... HARDNESS..... : 319 HB

FLUAGE
 STRESS RUPTURE TEST AT 1200°F (649°C)
 UNDER 70,000 PSI (483MPa)

DUREE DE VIE..... TIME..... : 148.9 H

JUN 02 2015



RAOUL F. WIRE, INC. - F.
 04/07/25

A77107

QUALITY CONTROL : DUPUIS G.
 Signature :
 Unterschrift :
 12.16.11
 Imphy plant
 Voir page suivante

CERTIFICAT DE RECEPTION 3.1-EN 10204 n° C064334/2
Inspection certificate - Abnahmeprüfzeugnis

Client : CENTRAL W UNION
Customer :
Kunde :
V/Commande : 2009897
Your order :
Ihre Bestell. Nr :
du : 07.20.11
Of :
Von :
Spécification : D.3.PRS.010.S REV.B 05/05/11
Specification :
Vorschrift :

N/Référence : 303807/02
Our reference :
Ihrer Auftrag Nr. :

ALLONGEMENT : ELONGATION : 15.0 %

ETAT HYPERTREMPE 900° + VIEILLISSEMENT 720°16H AIR

HEAT TREATMENT OF TEST SPECIMEN 1650°F 1H WATER+1325°F16H AIR

LIMITE ELASTIQUE. YIELD STRENGTH 0.2% : 799 MPA
RESISTANCE. TENSILE STRENGTH : 1122 MPA
ALLONGEMENT. ELONGATION SUR 4D : 29.0 %
STRICTION. RED. OF AREA : 51.0 %
DURETE HB. HARDNESS : 338 HB

FLUAGE

STRESS RUPTURE TEST AT 1200°F (649°C)

UNDER 65,000 PSI (448MPa)

DUREE DE VIE. TIME : 155.8 H
ALLONGEMENT. ELONGATION : 28.0 %

MELTING PROCESS: EF+VAR NO WELDING WITH FILLER METAL HAS BEEN PERFORMED STRESS RUPTURE AND AGE HARDENING AND CHEMISTRY TO MEET

LATEST ISSUE OF AMS 5731L, AMS 5732J, 5734K AND 5737P ARCELORMITTAL SNA CERTIFIES THAT THIS MATERIAL HAS BEEN MELTED PRODUCED IN FRANCE, QUALIFYING COUNTRY, AS REQUIRED BY DFARS 252.225-7014

MATERIAL IS FREE FROM MERCURY, RADIUM, OR ALPHA SOURCE CONTAMINATION

THE WILLFUL RECORDING OF FALSE OR FRAUDULENT STATEMENTS ON THIS DOCUMENT MAY RESULT IN PUNISHMENT AS A FELONY UNDER FEDERAL STATUTES

JUN 02 2015



A77107

RAOCLIFT WIRE, INC.
04/10/75

Standard Terms of Sale

1. **TERMS AND CONDITIONS OF SALE:** All descriptions, quotations, proposals, offers, acknowledgements, acceptances and sales of MSA's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyers acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by MSA, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and MSA unless expressly accepted in writing by an authorized employee of MSA. MSA's acceptance of any offer to purchase by Buyer is expressly conditioned upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer and Buyer's assent shall be conclusively presumed from Buyer's failure to reasonably object thereto in writing and Buyer's acceptance of all or part of the products ordered.

2. **PAYMENT:** Unless other terms are agreed to in writing, payment shall be made by Buyer *net 30 days* from the date of shipment of the items purchased hereunder. MSA reserves the right to require guarantees, security, or payment in advance and to charge interest on all past due amounts. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless MSA receives notice, thereof *within 30 days* after Buyer's receipt of the shipment.

3. **TERMS OF SHIPMENT, ACCEPTANCE:** MSA will ship in accordance with instructions supplied by Buyer, but if Buyer fails to furnish instructions, MSA will select what is, in its opinion, the most satisfactory routing for shipment. If Buyer is to pick up products and has not done so within seven (7) days after notification that they are ready for shipment, MSA may ship the products by commercial carrier. Title to and risk of loss for the products passes to Buyer upon delivery to carrier. Any prepayment by MSA of freight charges shall be as stated in the delivery documents of the products. By accepting products from the carrier, Buyer agrees that they are free of defects, which a reasonably careful inspection would disclose. End items and/or spare parts shall be packed and packaged in accordance with best commercial practice for one-way shipment by air and/or surface transportation. All shipments are FOB Olathe, Kansas.

4. **DATE OF SHIPMENT:** Shipping dates are given at the best of MSA's knowledge based upon conditions existing at the time the order is placed and information furnished by Buyer. MSA will, in good faith, endeavor to ship by the estimated shipping date but shall not be responsible for any delay or any damage arising therefrom.

5. **DISCLAIMER OF ANY WARRANTY: BUYER ACKNOWLEDGES THAT IT IS PURCHASING PRODUCTS FROM MSA IN MSA'S CAPACITY AS A DISTRIBUTOR OF SUCH PRODUCTS FOR THE MANUFACTURERS OF SUCH PRODUCTS. BUYER ACKNOWLEDGES THAT IT WILL RELY SOLELY ON THE WARRANTY(S), IF ANY, PROVIDED BY THE MANUFACTURER AND THAT MSA MAKES NO WARRANTIES ON ITS OWN BEHALF WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT BY WAY OF LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS OR ANY PARTICULAR PURPOSE CONCERNING SUCH PRODUCTS.**

6. **LIMITATION OF REMEDY:** In the event Buyer claims that MSA has breached any of its obligations to Buyer under this Standard Terms of Sale, MSA may at its sole discretion, request the return of the products and tender to the Buyer the purchase price therefore paid by Buyer and, in such event, MSA shall have no further obligations under the sales agreement except to refund such purchase price upon redelivery of the products. If MSA so requests the return of the products, the products shall be redelivered to MSA in accordance with MSA's instructions at MSA's expense. **THE REMEDIES PROVIDED FOR IN THIS PARAGRAPH SHALL CONSTITUTE THE SOLE RECOURSE OF BUYER AGAINST MSA FOR BREACH OF ANY OF MSA'S OBLIGATIONS UNDER THIS SALES AGREEMENT WITH BUYER, WHETHER THE CLAIM IS MADE IN TORT OR IN CONTRACT, INCLUDING CLAIMS BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE. IN NO EVENT SHALL MSA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. NOR SHALL MSA'S LIABILITY FOR ANY CLAIMS OR DAMAGES ARISING OUT OF OR CONNECTED WITH THIS SALES AGREEMENT OR THE MANUFACTURE, SALES DELIVERY OR USE OF PRODUCTS EXCEED THE PURCHASE PRICE OF THE PRODUCT.**

7. **CHANGES, RESCHEDULES & CANCELLATIONS:** Buyer's order may not be modified or rescinded except in writing signed by MSA and Buyer. If all or part of Buyer's order is terminated by such modification or rescission, Buyer, in the absence of a contrary written agreement between MSA and Buyer, shall pay termination charges based upon cost determined by accepted accounting principles plus a reasonable profit. In any circumstance, MSA's written consent must be given in advance of

Buyer's return of products for credit.

8. **SPECIAL TOOLING:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain MSA's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to MSA which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, MSA shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

9. **BUYER'S PROPERTY:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by MSA after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. MSA shall not be responsible for any loss or damage to such property while it is in MSA's possession or control.

10. **TAXES:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by MSA or if MSA is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse MSA therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall hold MSA harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

11. **FORCE MAJUERE:** MSA shall not be liable for any failure to perform its obligations under this Sales Agreement resulting directly or indirectly from or contributed to by any acts of God, acts of Buyer, acts of civil or military authority, priorities, fire, strikes or other labor disputes, accidents, floods, epidemics, war, riot, delays in transportation, lack of or inability to obtain raw materials, components, labor, fuel or supplies, or other circumstances beyond MSA's reasonable control. All sales shall be subject to the export and munitions control laws of the United States. Buyer shall not make any dispositions, re-exports or diversion of United States original products purchased from MSA except as said laws may expressly permit.

12. **ENTIRE AGREEMENT/GOVERNING LAW:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by an authorized employee of MSA in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Kansas. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than ONE (1) year after the cause of action accrues.

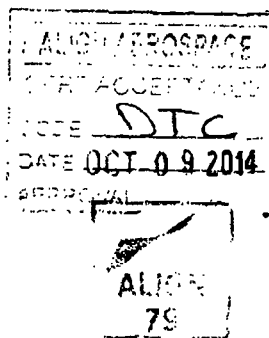
Certificate of Compliance

To: Align Aerospace, LLC
21123 Nordhoff Street
Chatsworth CA 91311-5816

Customer's Order No. 4500041842
Sales Order No. 582446 SO
Shipping Date 09/25/14

Non-transferable

PART NUMBER	CONTROL NUMBER	I/A/W	QUANTITY
3591-5CN469	796442 (W-5055642)	MS21209F5-15	2000.000
Country of Origin: US		BACI12AE-F5-15	
3591-5CN469	861810 (W-5057385)	MS21209F5-15	60000.000
Country of Origin: US		BACI12AE-F5-15	
3591-5CN469	861811 (W-5057385)	MS21209F5-15	38000.000
Country of Origin: US		BACI12AE-F5-15	



We, STANLEY Engineered Fastening certify that all items listed above and supplied on the above mentioned Purchase Order have been inspected and comply in every way with the relevant drawings and/or specifications in accordance with your requirements.

We further certify that all stainless steel inserts supplied on the above Purchase Order have been inspected and comply in all respects with the applicable drawings and with the chemical composition and physical property requirements of AS7245 Rev A and ASME SA-479. All testing & sampling plans apply per NASM8846 Rev. 1.

In addition, those stainless steel inserts covered by National Aerospace Standards MS21208, NASM21209 Rev 3, NASM122076 thru NASM122275 Rev 1, NASM124651 thru NASM124850 Rev 1, MS9018 Rev A and National Aerospace Specification NASM8846 Rev 1 are certified to conform thereto.

We also certify that all Inconel inserts supplied on the above Purchase Order have been inspected and comply in all respects with the applicable drawing and with the chemical composition and physical property requirements of AS7246 Rev NEW. All testing & sampling plans apply per NASM8846 Rev. 1.

We further certify that Tangles® inserts are in conformance with NAS1130 Rev 5 and NA0276 Rev 3. Tangles is a registered trademark of Advanex, Inc. (JP) used under license.

Metric Heli-Coil® inserts are covered by the following Aerospace Standards MA3279 Rev B, MA3280 Rev B, MA3281 Rev B, MA3329 Rev C, MA3330 Rev C, MA3331 Rev C and MA1585 Rev B.

STANLEY Engineered Fastening maintains a single standard of quality and the Quality Assurance Program has been designed to comply with the requirements of ISO 9001:2008, AS9100:2009 Rev C, and TS16949:2009.

We further certify that the parts supplied are free from mercury contamination and that mercury in any form, including mercury thermometers, was not used in manufacture or testing of the parts.

DFARS 252.225-7009 applies to articles containing specialty metals. We further certify that any tools and kits with an NSN number and Heli-Coil wire inserts supplied on the above Purchase Order comply with the requirements of section 252.225-7015 of DFARS.

The Quality Assurance Program, inspection records, chemical composition and physical analysis reports and special process certification are available for your review at our plant in Danbury, Connecticut at any time during normal business hours.

We also certify that all brass inserts supplied on the above Purchase Order have been inspected and comply in all respects with the applicable drawing and with the chemical composition and physical property requirements of ASTM B16.

Authorized Signature

Robert B. Burgher

Quality Representative

Emhart Teknologies LLC, a business division of
Firm STANLEY Engineered Fastening

A StanleyBlack&Decker, Inc. Company

This certificate of compliance is valid only when issued by STANLEY Engineered Fastening, 4 Shelter Rock Lane, Danbury, Connecticut 06810 or its authorized distributors. Any correspondence should reference the control number.

PERTH, ON
ERIN, ON
DUMAS, AN
LANCASTER, SC

813-267-3752 FAX 613-267-6617
618-833-9632 FAX 619-833-2213
870-382-2980 FAX 870-382-8888
803-283-3383 FAX 803-283-8303



FOND DU LAC, WI
UNION, IL
PERRIS, CA

820-826-0809 FAX 820-826-0652
815-823-2131 FAX 816-923-2128
951-667-2105 FAX 951-943-0081

THE LEADING MANUFACTURER OF STAINLESS STEEL AND NICKEL ALLOY WIRE PRODUCTS
EXECUTIVE OFFICES: PERTH, ON CANADA • EMAIL: sales@centralwire.com

CENTRAL WIRE INDUSTRIES LTD.
1 NORTH STREET, PERTH, ONTARIO, CANADA K7H2S2
TEL: 613-267-3752 1-888-267-3761
FAX: 613-267-3928/2951 SALES FAX: 613-267-6617

CERTIFICATE OF CONFORMANCE

SOLD TO	EMHART TECHNOLOGIES LLC P.O. BOX 50918 INDIANAPOLIS	SHIP TO	EMHART TECHNOLOGIES LLC SHELTER ROCK LANE DANBURY
	USA		USA
	IN 46250		CT 06810

CUSTOMER'S PO NO. 892531	TYPE OF CERT Customer	CUSTOMER 110394	ORDER NO. 2030640	WORK ORDER 1 5057385	DATE SHIPPED 6/13/14
SPECIFICATIONS: MS2 Issue CF, AS7245 Rev.A paragraphs 2 & 3.1 p/n: WR-WC-0380					

ITEM DESCRIPTION			
CHQ 304 FULL HARD Bright .0380 500LB PLReel Clean	DESCRIPTION: Melt mill NAS Country of origin USA	SPEC. CLASS	HEAT L1Y6
		QTY SHIP 1284	025

CHEMICAL ANALYSIS						
C .0672	FE Balance	CR 18.0425	CU .250	MN .7335	MO .1080	N .0506
NI 8.0450	P .0225	S .001	SI .2975			

MECHANICAL PROPERTIES						
AS SHIPPED PROPERTIES:						
DIAMETER .03798"	TENSILE 208.900 KSI	YIELD 172.800 KSI	ELONGATION 0.800 %	Y/T RATIO 0.820		
AFTER HEAT TREAT PROPERTIES:						

CHEMICAL ANALYSIS O.K.
JUN 24 2014
QUALITY ASSURANCE
KEL-COOL PROD.

Wire was solution annealed at 1900F min before final draw
Passed cold bend, coil and stretch test. Tested to ASTM A479-04
Raw material is DFARS 252.225-7009 compliant. Rod produced by USA

The material as shipped is free from mercury contamination. I certify the
chemical analysis and physical and mechanical test results reported above are
correct as contained in the records of the company.

Very truly yours,

[Signature]
AUTHORIZED SIGNATURE

Emhart Technologies LLC
Shelter Rock Lane
Danbury CT 06810

()

STANLEY.
Engineered Fastening

SHIPPER/PACKING LIST	
SID NUMBER	DATE
3064593	09/25/14

S Align Aerospace, LLC
O 21123 Nordhoff Street
L Chatsworth CA 91311-5816
D

T
O

S Align Aerospace, LLC
H 21123 Nordhoff Street
P Chatsworth CA 91311-5816

Page: 1

Affix Pro/Tracking No. To Order

REMARKS		F.O.B.		FREIGHT TERMS	
FEDEX GRD COL#187921562		Danbury, CT		Freight Collect	
		SHIP VIA		CUSTOMER P.O.	
		See Text		4500041842	
				OUR ORDER NO.	
				582446	
QUANTITY SHIPPED	CUSTOMER PART NO. OUR PART NO.	NET WEIGHT	CONTAINERS QTY. TYPE		FREIGHT CLASS
					PS# 1879052
2000.000	3591-5CN469 INS H-C 5/16-24UNF S/L MS21209F5-15 Lot 796442	5.9600			070
60000.000	3591-5CN469 INS H-C 5/16-24UNF S/L MS21209F5-15 Lot 861810	178.8000			070
38000.000	3591-5CN469 INS H-C 5/16-24UNF S/L MS21209F5-15 Lot 861811	113.2400			070
FRT CLASS	DESCRIPTION	NO. OF CR	NO. OF SKIDS	= TOTAL NO. OF CONTAINERS	
070	Class 70				

COLLECT ON DELIVERY \$ _____ AND REMIT TO _____

STREET _____ CITY _____ STATE _____

WE HEREBY CERTIFY THAT THESE GOODS WERE PRODUCED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF SECTIONS 6, 7 AND 12 OF THE FAIR LABOR STANDARDS ACT, AS AMENDED AND OF REGULATIONS OF THE UNITED STATES DEPARTMENT OF LABOR, ISSUED UNDER SECTION 14 THEREOF

SHIPPER STANLEY. Engineered Fastening
PER _____ PERMANENT POST OFFICE ADDRESS OF _____

PACKING SLIP

A StanleyBlack&Decker, Inc. Company



6870 HIGHWAY 42 EAST

METALLURGICAL TEST REPORT

NORTH AMERICAN STAINLESS
6870 HIGHWAY 42 EAST
GHENT, KY 41045

Certificate: 919804 1

Mail To:
CENTRAL WIRE
1 NORTH STREET
PERTH, ON K7H2S2

Ship To:
CENTRAL WIRE
1 NORTH STREET
PERTH, ON K7H2S2

Date: 2/18/2014 Page: 1

Customer: 007065 001

Steel: 302/304

Your Order: 2503570

NAS Order: DS 0005085 01

Finish: HRAP

Corrosion: ASTM A262 Pract A/E OK

PRODUCT DESCRIPTION:

Wire Rod HRAP
UNS S30400, EN 10204 3.1B
ASTM A555/03, ASTM A580/08 (CHEM ONLY)

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7008 HU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	Length	Mark	Places	Commodity Code
WC9899 0		.2165		2,370		4	1	R0304H 2180

CHEMICAL ANALYSIS

HEAT	CM	C %	CO %	CR %	CU %	MN %	MO %	N %	NI %	P %
L1Y6	US	.0672	.1415	18.0425	.2500	.7335	.1080	.0506	8.0450	.0225
		S %	SI %							
		.0010	.2975							

MECHANICAL PROPERTIES

Product Id	1 d	HB	.2YS	UTS	RA	Elong
	o i	No.	KSI	KSI	%	% 2"
WC9899 0	R L	132.00	35.41	93.07	83.93	66.50

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

ERIC HESS

2/18/2014

STANLEY
Engineering & Manufacturing

TORQUE TEST REPORT

Stanley Black & Decker

PART NUMBER 3591-5CN469	WIRE LOT NUMBER W-5057385	WORK ORDER NUMBER 861811	WORK ORDER QUANTITY 43000
THREAD SIZE 5/16-24 SL	SPECIFICATION NUMBER PP-3	UNITS LB-IN	MACHINE NUMBER 338

PLATED ☐

AFTER H/T ☐

BEFORE H/T ☐

1st PIECE ☐

IN-PROCESS ☐

FINAL ☒

S P E C S	1st CYCLE				7th CYCLE		15th CYCLE	
	INSTALLATION		BREAKAWAY		INSTALLATION		REMOVAL	
	60-LB-IN	MAX	6.5-LB-IN	MIN	60-LB-IN	MAX	6.5-LB-IN	MIN
TEST RESULTS								
1	41.3	MAX	40.365	MIN	27.89	MAX	24.445	MIN
2	35.105	MAX	36.885	MIN	28.995	MAX	22.14	MIN
3	41.575	MAX	41.36	MIN	30.59	MAX	29.085	MIN
4	38.985	MAX	38.73	MIN	27.545	MAX	26.98	MIN
5		MAX		MIN		MAX		MIN
6		MAX		MIN		MAX		MIN

DISPOSITION ACCEPTED	INSPECTOR 108728	DATE 08.18.14
--------------------------------	----------------------------	-------------------------



Western Wire Products

770 Sun Park Drive
Fenton, MO 63026
636/305-1100 Fax: 636/305-1119
800-325-3770
www.westernwireprod.com
sales@westernwireprod.com


PACKING SLIP

Order #	Page #	***REPRINT***
457718-04	1	
PO Date	PO #	
12/23/14	10109NV	

Cust #: 522319

Bill To: EAST COAST AVIA SUPS INC
399 EAST DRIVE
MELBOURNE, FL 329041030

Ship To: E C A S WEST
7540 DEAN MARTIN DRIVE
SUITE 506/507
LAS VEGAS, NV 89139

Order Type: EMAIL				
Instructions	Taken By	Order #		
	cinn			
Ship Point	Via	Request	Shipped	Terms
Western Wire Products Co	UPS COL GR	02/02/15	03/19/15	1%15 N30

LINE	ITEM AND DESCRIPTION	BIN	ORDERED	B.O.	SHIPPED	UM	PACKED	TYPE OF CONTAINER	CONTAINER WEIGHT
+++++ Western Wire Cotter Pins conform to Federal Specifications when applicable, and when specified. Supporting material test reports are on file. +++++ <i>Gene B. Johnson (CA)</i>									
PACKING: ***** MUST HAVE A SIGNED PACKING SLIP ***** DO NOT HOLD ORDER MORE THAN 1 WEEK SHIP AND BACKORDER SHIP RUSH AND BACKORDER ON ALL ORDERS !! ***CUSTOMER MUST HAVE ALL LOT #'S LISTED ON PACKING SLIP*** *****DO NOT SEND PARTS THAT DO NOT HAVE A LOT # ***** SHIPPING: FED X ACCT.#1581-7115-5 (ONLY IF ORDERS ARE NOTED FEDEX!!) UPS COLLECT NUMBER 316-5E0, OVER 200# SHIP FEDEX ECONOMY COLLECT 415047517									
10	103012MS151S / /C06/03A 1/16 X 1/2 STAINLESS STAINLESS STEEL COTTERS Interchange Prod: MS24665-151 COTTER PINS MS24665-151 Lot #: DSS110514A-4 Qty: 67,000.00 BULK PACK CTN 1 35# CC 3-19-15		67,000.00	0.00	67,000.00	EA			
6	103114EPCPCP / /C05/12A MS24665-138 1/16 X 1-1/4 STEEL COTTERS, CAD. PLTD Interchange Prod: MS24665-138 .0002 YELLOW CHROMATE EXTENDED PRONG CHISEL POINT IN CTN 2 CC 2-19-15		1,762.00	1,762.00	0.00	EA			
Lines Total		** # of Lines Not Printed	Qty Shipped Total		Total				
Picked By	Packed By	Checked By	Cube	Weight	Freight Charges	Received By	Date Received		

NO RETURNS WITHOUT PRIOR APPROVAL (RMA # REQUIRED)

Continued

MAC FASTENERS, INC.
1110 ENTERPRISE
OTTAWA, KANSAS 66067

**CERTIFICATE OF CONFORMANCE
AND
MANUFACTURER'S AFFIDAVIT**

CUSTOMER BILD INDUSTRIES

PO: 90783

PART NUMBER: MS27039-08-08

REV: 5

LOT NUMBER: 87313

MANUFACTURED QUANTITY: 115,000

MILL HEAT NUMBER: MM16107028

COUNTRY OF ORIGIN: UNITED STATES OF AMERICA

DFARS 252.225.7009 Compliant

MERCURY FREE CERTIFICATION

MacFasteners certifies that the parts referenced in the above lot number do not contain Mercury or Mercury compounds, and were manufactured in a Mercury free environment.

We certify that the parts furnished against the above referenced purchase order were manufactured by MAC FASTENERS within the United States, and were processed in accordance with all applicable drawings and specifications. Objective evidence of compliance is on file, subject to examination upon request.

Mac Fasteners is a DISC QSLM approved Manufacturer - CAGE Code 0RFT4
Mac Fasteners is an Airbus approved Supplier - 203399

DATE: 06/26/17


QUALITY ASSURANCE REPRESENTATIVE

Mac Fasteners
A TriMas Aerospace Company
1110 E. Enterprise
Ottawa, KS 66067

TEST REPORT AND PROCESS CERTIFICATION

CUSTOMER BILD INDUSTRIES		PO NUMBER 90783	PO Date 01/27/17	CERT DATE 06/26/17
PART NUMBER MS27039-08-08	REV 5	PART TYPE Screw, Pan Head, Cruciform Recess		
LOT NO 87313	MFG QUANTITY 115,000	PROCUREMENT SPEC NASM7839 REV 1		

RAW MATERIAL IDENTIFICATION (Mill Cert Attached)

MATERIAL / MATERIAL SPECIFICATION 8740 PER AMS6322	MILL HEAT NUMBER MM16107028	SUPPLIER JOHNSTOWN
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MECHANICAL TEST RESULTS - TESTING PER NASM1312

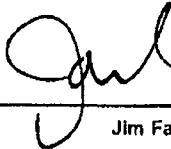
ULTIMATE TENSILE STRENGTH POUNDS / PSI <table><tr><td>2,130</td><td>2,200</td></tr><tr><td>2,120</td><td>2,180</td></tr><tr><td>2,190</td><td>2,180</td></tr><tr><td>2,200</td><td>2,170</td></tr><tr><td>2,150</td><td>2,190</td></tr><tr><td>2,150</td><td></td></tr><tr><td>2,140</td><td></td></tr><tr><td>2,120</td><td></td></tr></table> MIN. REQ. 1750	2,130	2,200	2,120	2,180	2,190	2,180	2,200	2,170	2,150	2,190	2,150		2,140		2,120		DOUBLE SHEAR STRENGTH POUNDS / PSI TOO SHORT TO TEST PER NASM1312-13 MIN. REQ.	Fatigue Test Sample <input type="checkbox"/> Accept NOT REQUIRED Stress Durability <input type="checkbox"/> Accept External Load Method Load Hours Magnetic Particle Inspection per ASTM E1444 Sample insp <input type="checkbox"/> 100% insp <input type="checkbox"/> Accept Liquid Penetrant Inspection per ASTM E1417 Sample insp <input type="checkbox"/> 100% insp <input type="checkbox"/> Accept Magnetic Permeability ASTM A342 Less than 2.0 <input type="checkbox"/> Accept Head Marking <input checked="" type="checkbox"/> Accept Recess Torque in/lbs <input type="checkbox"/> Accept
2,130	2,200																	
2,120	2,180																	
2,190	2,180																	
2,200	2,170																	
2,150	2,190																	
2,150																		
2,140																		
2,120																		
METALLURGICAL EXAMINATION <table border="1"><tr><td>Discontinuities</td><td><input checked="" type="checkbox"/></td><td>Carb/Decarb</td><td><input checked="" type="checkbox"/></td></tr><tr><td>Grain Flow</td><td><input checked="" type="checkbox"/></td><td>Microstructure</td><td><input checked="" type="checkbox"/></td></tr><tr><td>Grain Size</td><td><input checked="" type="checkbox"/></td><td>Workmanship</td><td><input checked="" type="checkbox"/></td></tr></table> <table><tr><td>Thread Inspection FED-STD-H28/20 - ASME B1.3</td><td>System 21 <input type="checkbox"/></td><td>System 22 <input checked="" type="checkbox"/></td><td>System 23 <input type="checkbox"/></td></tr></table>			Discontinuities	<input checked="" type="checkbox"/>	Carb/Decarb	<input checked="" type="checkbox"/>	Grain Flow	<input checked="" type="checkbox"/>	Microstructure	<input checked="" type="checkbox"/>	Grain Size	<input checked="" type="checkbox"/>	Workmanship	<input checked="" type="checkbox"/>	Thread Inspection FED-STD-H28/20 - ASME B1.3	System 21 <input type="checkbox"/>	System 22 <input checked="" type="checkbox"/>	System 23 <input type="checkbox"/>
Discontinuities	<input checked="" type="checkbox"/>	Carb/Decarb	<input checked="" type="checkbox"/>															
Grain Flow	<input checked="" type="checkbox"/>	Microstructure	<input checked="" type="checkbox"/>															
Grain Size	<input checked="" type="checkbox"/>	Workmanship	<input checked="" type="checkbox"/>															
Thread Inspection FED-STD-H28/20 - ASME B1.3	System 21 <input type="checkbox"/>	System 22 <input checked="" type="checkbox"/>	System 23 <input type="checkbox"/>															

FINISH / PROCESSOR: Detray Plating Works	
Cadmium Plate <input checked="" type="checkbox"/>	AMS-QQ-P-416 E Type II Class 2
Passivate <input type="checkbox"/>	
<input type="checkbox"/>	

HEAT TREAT PROCESSOR: Paulo Products NADCAP ID 4679	
SPECIFICATION: AMS2759	
REQUIREMENT: 125-145 KSI FTU HRC 26-32	
RESULTS: SAMPLE SIZE: 13	27 - 31 HRC

TEST CERTIFICATION

WE CERTIFY THAT THE PART NUMBER, LOT NUMBER, AND SAMPLES REFERENCED ABOVE HAVE BEEN PROCESSED AND TESTED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATION FOR THE TESTS REPORTED HEREIN. THIS CERTIFICATION SHALL NOT BE RE-PRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF MAC FASTENERS, INC.


Jim Farrell

Quality Assurance Representative

Mac Fasteners Inc.
A TriMas Aerospace Company
1110 E. Enterprise
Ottawa, KS 66067

HEAT TREAT CERTIFICATION

CUSTOMER: BILD INDUSTRIES

DATE: 06/26/17

PO NUMBER: 90783

MANUFACTURED QUANTITY: 115,000

PROCESSOR:

Paulo Products NADCAP ID 4679

LOT NUMBER: 87313

MATERIAL: 8740

PART NUMBER: MS27039-08-08

REVISION: 5

REQUIRED HARDNESS: 125-145 KSI FTU HRC 26-32

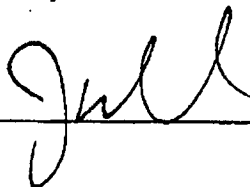
SAMPLE SIZE: 13

HARDNESS: 27 - 31 HRC

HEAT TREAT SPECIFICATION: AMS2759

Notes:

The fasteners referenced in this report have been processed, inspected and certified by the Heat Treat Contractor in accordance with all applicable drawings and specifications. Heat Treatment has been verified in accordance with procurement specification and part drawing, by metallurgical and mechanical testing as applicable. Evidence of compliance as well as certification from the Heat Treat Contractor is on file and subject to examination upon request.



QUALITY ASSURANCE REPRESENTATIVE



Johnstown Wire Technologies

124 Laurel Ave,
Johnstown, PA 15906

Phone: 814 532-5756
Fax: 814 532-5684

TEST REPORT

WORK ORDER
630453

LOT NUMBER
E-MM16107028

SALES ORDER / RLS
097440 / 001

CERT ID / REV
00058759 / 01

SOLD TO

Mac Fasteners, Inc.
Best Way Distribution
13209 Arrington Rd. Docks 17-20
Grandview, MO 64030
USA



CUSTOMER P.O. P000002245	CUSTOMER PART 8740-.160	QUANTITY 5,382 LBS	COILS 3	LADING NO 00145365	SHIPMENT DATE 05/16/2017						
SPECIFICATION MacFast-87160 AMS2301; AMS6322; AMS-S-6049A; MIL-S-6049A 8740 DFARS TS 95000 PSI Max Defense Federal Acquisition Regulation Supplement Silicon Killed Fine Grain Aircraft Quality/Cold Heading Quality Drawn From Annealed Rod Spheroidize Annealed In Process Heavy Phos & Light Lube Ctd Size: .160 +.001 -.000											
CERTIFICATION REQUIREMENTS											
Chemical											
C	Mn	P	S	Si	Al	Ni	Cr	Mo	Cu	V	
.39	.77	.007	.005	.23	.029	.41	.45	.205	.12	???????	
Co	Ti	N	Sn								
???????	???????	.0051	.005								
Physical											
J1	J10	J11	J12	J2	J3	J5	J4	J6	J7	J8	J9
56	39	37	35	56	56	49	52	46	44	42	40
Mechanical											
TEST		UNITS		HIGH		LOW		AVERAGE			
Tensile Str		Lbs/SqIn		85000		84000		85000			
RA Per Cent		Percent		75.8		75.2		75.5			
Decarb FFD		Inches		.000		.000		0.000			
Surface def. depth		Inches		.001		.001		0.001			
Rod / Melt Source											
Rod Source		Melt Source		Country of Origin		Nafta					
Nucor		Nucor		USA		Yes					
End of Certification											

I certify that the results are a true and correct copy of the records prepared and maintained by JOHNSTOWN WIRE TECHNOLOGIES in compliance with the requirements of the cited specification. Chemistry is as reported by the rod / bar supplier and is not in JWT A2LA accreditation. This test report cannot be reproduced or distributed except in full without the written permission of JOHNSTOWN WIRE TECHNOLOGIES. The test results certified herein relate only to the items tested.

Daniel J. Malik
Daniel J. Malik, Director of Quality Assurance

NUCOR

NUCOR CORPORATION
NUCOR STEEL SOUTH CAROLINA

Mill Certification 1/30/2017

MTR #: C1-390744
300 Steel Mill Road
DARLINGTON, SC 29540
(843) 393-5841
Fax: (843) 395-8701

Sold To: JOHNSTOWN WIRE TECHNOLOGY
124 LAUREL AVE
JOHNSTOWN, PA 15908
(814) 532-5800
Fax: (814) 532-5813

Ship To: JOHNSTOWN WIRE TECHNOLOGY
124 LAUREL AVE
JOHNSTOWN, PA 15908
(814) 532-5800
Fax: (814) 532-5813

Customer P.O.	91957	Sales Order	259738.1
Product Group	Rod	Part Number	32000312000DUJA
Grade	8740 MIL-S-6049 ASMS 6322	Lot #	DL1790702801
Size	5/16" (.3125) Wire Rod	Heat #	MM16107028
Product	5/16" (.3125) Wire Rod Coil 8740AQ	B.L. Number	C1-711515
Description	8740AQ	Load Number	C1-390744
Customer Spec		Customer Part #	FXT40AA-5/16

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

Roll Date: 1/16/2017 Melt Date: 12/13/2016 Qty Shipped LBS: 43,181 Qty Shipped Pcs: 11

Melt Date: 12/13/2016

C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Al	Sn
0.39%	0.77%	0.007%	0.005%	0.23%	0.12%	0.41%	0.45%	0.205%	0.0000%	0.029%	0.005%
N	H										
0.0051%	1 ppm										

Actual Hardenability Band

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10	J11	J12	J13	J14	J15	J16	J18	J20	J22	J24	J26	J28	J30	J32
56	56	56	52	49	46	44	42	40	39	37	35	34	33	32	31	30	29	28	27	27	26	26	25

Roll Date: 1/16/2017

Microexamination OK

AMS 2301 Frequency: 0.00

AMS 2301 Severity: 0.00

Min Tensile 126000psi

Max Tensile 132000psi

Average Tensile 128000psi

Reduction of Area: 57%

Grain Size per ASTM E112 = 8

Reduction Ratio 4511.00 :1

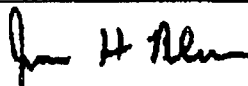
ASTM E381

Surface: 2 Mid Radius: 2 Center: 2

ASTM E45 Method A (Worst)

Sulfides: T: 1.5 H: 1.5 Alumina: T: 0.0 H: 0.0 Silicates: T: 0.0 H: 0.0 Globular: T: 0.5 H: 0.5

1. WELDING OR WELD REPAIR WAS NOT PERFORMED ON THIS MATERIAL
2. MELTED AND MANUFACTURED IN THE USA
3. MERCURY, RADIUM, OR ALPHA SOURCE MATERIALS IN ANY FORM HAVE NOT BEEN USED IN THE PRODUCTION OF THIS MATERIAL



James H. Blew
Division Metallurgist

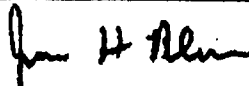
NUCOR**NUCOR CORPORATION
NUCOR STEEL SOUTH CAROLINA****Mill Certification
1/30/2017**MTR #: C1-390744
300 Steel Mill Road
DARLINGTON, SC 29540
(843) 393-5841
Fax: (843) 395-8701Sold To: JOHNSTOWN WIRE TECHNOLOGY
124 LAUREL AVE
JOHNSTOWN, PA 15906
(814) 532-5600
Fax: (814) 532-5613Ship To: JOHNSTOWN WIRE TECHNOLOGY
124 LAUREL AVE
JOHNSTOWN, PA 15906
(814) 532-5600
Fax: (814) 532-5613

Customer P.O.	91957	Sales Order	259738.1
Product Group	Rod	Part Number	32000312000DU1A
Grade	8740 MIL-S-6049 ASMS 6322	Lot #	DL1790702801
Size	5/16" (.3125) Wire Rod	Heat #	MM16107028
Product	5/16" (.3125) Wire Rod Coil 8740AQ	B.L. Number	C1-711515
Description	8740AQ	Load Number	C1-390744
Customer Spec		Customer Part #	FXT40AA-5/16

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed above and that it satisfies those requirements.

Specification Comments:

1. WELDING OR WELD REPAIR WAS NOT PERFORMED ON THIS MATERIAL
2. MELTED AND MANUFACTURED IN THE USA
3. MERCURY, RADIUM, OR ALPHA SOURCE MATERIALS IN ANY FORM HAVE NOT BEEN USED IN THE PRODUCTION OF THIS MATERIAL

James H. Blew
Division Metallurgist

DE TRAY

Plating Works

Specialized Electro-Plating and Polishing
Nickel **Passivate**
Copper **Bright Dip**
Decorative Chrome **Strip Copper**
Satin Chrome **Descale**
Zinc
Cadmium

10405 EAST ELEVENTH STREET • INDEPENDENCE, MISSOURI 64052
Phone (816) 252-8411 Fax (816) 252-8527 • E-mail: DeTrayPlating@aol.com

June 23, 2017

Mac Fasteners
1110 East Enterprise Street
Ottawa, Kansas 66067

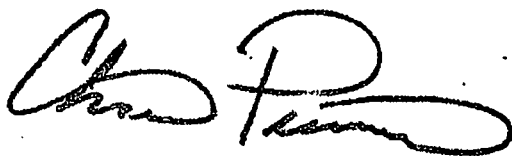
Subject: Certification

This is to certify that the following parts have been cadmium plated QQ-P-416/AMS-QQ-P-416/NAS4160/AMS2400, Type II, Class 2. Please reference our Invoice# 212784 dated 6/23/17 for:

Lot# 87313

P.N.- MS27039-08-08

Chris Pierson, Vice-President



DeTray Plating Works

SUPERIOR WASHER AND GASKET CORP.

170 Adams Avenue
Hauppauge, New York 11788
Phone: (631) 273-8282
Fax: (631) 273-8088
E-Mail: swg@superiorwasher.com
Web: superiorwasher.com
(In the East)

SUPERIOR WASHER AND GASKET CORP.

662 Bryant Blvd.
Rock Hill, South Carolina 29732
Phone: (803) 366-3250
Fax: (803) 366-3511
E-Mail: swg@superiorwasher.com
Web: superiorwasher.com
(In the South)

EAST COAST AVIATION SUPPLIES
399 EAST DRIVE

MELBOURNE, FL 32904

Customer Purchase Order Number		Superior Order Number	Superior Lot Number	Tracer No.
73328		C142669-5	C142669 - 5	SC36933 -3 /67815
Date	Production Card	Part Number	Quantity	
01-23-15	229845	NAS1149C0463R	250,000	
Drawing		Dual Cert No.		
REV 5 DFAR AN960-C416 REV 21				

We hereby certify that all materials and processes conform
to the required drawing specifications and that the parts
have been melted and manufactured in the U.S.A.
and comply with DFARS 252.225.7014 ALT 1
All parts are manufactured in a Mercury-free environment

Material

304 STAINLESS STEEL Annealed per AMS5513J

PASSIVATE AMS2700 METHOD 1 TYPE 6 CLASS 1

Chemical Analysis

C	CARBON	.0360
Mn	MANGANESE	1.3300
P	PHOSPHORUS	.0300
S	SULPHUR	.0010
Si	SILICON	.3300
Cr	CHROMIUM	18.3000
Ni	NICKEL	8.0600
Mo	MOLYBDENUM	.3700
Cu	COPPER	.4800
Fe	IRON	
Ti	TITANIUM	
Co	COBALT	
N	NITROGEN	.0640
Cb	COLUMBIUM	
Al	ALUMINUM	
Sn	TIN	
Mg	MAGNESIUM	
Zn	ZINC	
Pb	LEAD	
Va	VANADIUM	

Mechanical Properties

Yield	40319
Tensile	90210
Elongation	58.0
Hardness	B 81.0
Heat	503451
Magnetic	
Permeability	<2.0
Bend Test	OK

SUPERIOR WASHER & GASKET CORP.

By Richard Anderson, Jr.

Richard Anderson, Jr.
Quality Control Manager

ORDER NUMBER:659981

SUPERIOR WASHER AND GASKET CORP.

170 Adams Avenue,P.O.Box 5407

Hauppauge,New York 11788

PHONE:(631)273-8282

FAX:631-273-8088

S 3215
O ECAS, LLC. (MONROE AEROSPACE)
L 399 EAST DRIVE
D

T MELBOURNE FL 32904
O

SUPERIOR WASHER AND GASKET CORP.

170 Adams Avenue,P.O.Box 5407

Hauppauge,New York 11788

PHONE:(631)273-8282

FAX:631-273-8088

S 3215
H ECAS, LLC. (MONROE AEROSPACE)
I 399 EAST DRIVE
P ATTN: RECEIVING

T MELBOURNE FL 32904
O

PURCHASE ORDER NUMBER

FL80284

TERMS

1%10NT30

F.O.B

ORIGIN

E-MAIL

LG

SPECIAL INSTRUCTION

UPSCLT#316-5EO/OVR200#FEFRT

Line No	QTY ORD.	DESCRIPTION	UNIT PRICE	QTY. SHIPPED	AMOUNT
1.	50,000	NAS1149FN632P AN960-6 REV21 Revision: 6 1020 STEEL AMS5046 CAD YELLOW AMS-QQ-P-416 TY2 CL2 .0003/.0006 .3750 X .1490 X .0320 +.0200-.0050 +.0100-.0100 +.0030-.0030 SHIPPING DATES: 08/03/2017 <div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>PO# FL80284</p> <p>MAT STL</p> <p>P/N NAS1149FN632P</p> <p>ITEM 1 OF 1</p> <p>QTY 25000 EACH</p> <p>LOT# 609516-1</p> <p>UNIT WT/M 0.7725</p> <p>TOTAL WT 1 @ 42 LBS</p> <p>SUPERIOR WASHER & GASKET CORP. 170 ADAMS AVE. HAUPPAUGE NY 11788 662 BRYANT BLVD. ROCK HILL SC 29732</p> </div>		5000	

Page: 1

CERTIFICATION OF COMPLIANCE

WE VERIFY THAT THE ABOVE MATERIAL IS MANUFACTURED IN THE U.S.A AND CONFORM TO THE SPECIFICATIONS INDICATED IN DRAWING AND SPECIFICATION ON SAID PURCHASE ORDER AND PARTS ARE MERCURY FREE

By

Richard Anderson

QUALITY CONTROL MANAGER

